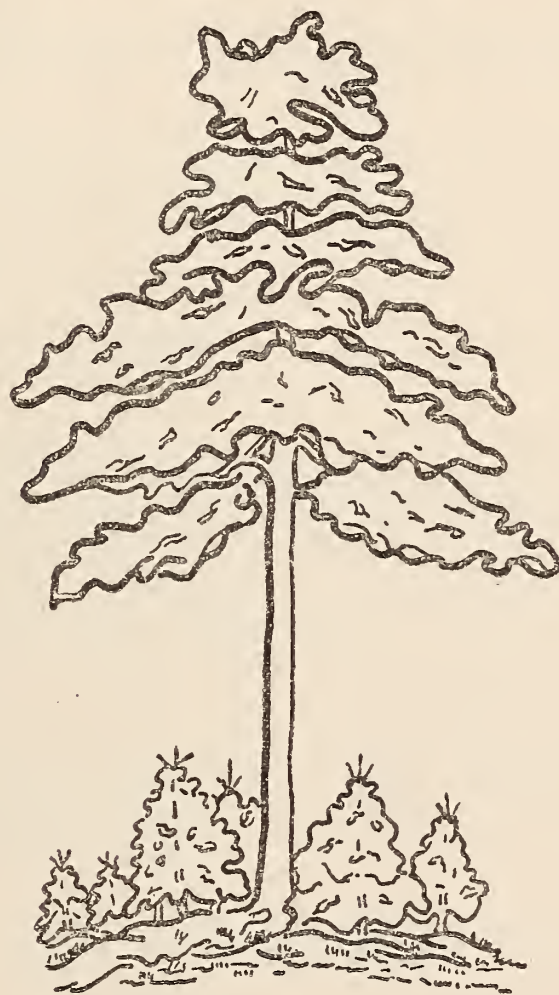


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THE BLISTER RUST NEWS



January, 1932.

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Number 1

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U.S. DEPARTMENT of AGRICULTURE
BUREAU of PLANT INDUSTRY
DIVISION of BLISTER RUST CONTROL

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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

T H E B L I S T E R R U S T N E W S

Issued by the Division of Blister Rust Control
and Cooperating States

Vol. 16, No. 1.

January, 1932

SUMMARY OF BLISTER RUST CONTROL WORK IN MAINE IN 1931

The control work in 1931 was continued in 70 towns and cities. Fifty of these expended \$8,443.13. A table showing the areas covered and the number of bushes destroyed in 1931 follows:

	Areas Cleared of Ribes (in acres)	Ribes Destroyed		Aver. No. of Bushes per Acre
		Wild	Cultivated	
Initial Eradication (Crew Work)	14,759	1,187,498	4,827	80
Reeradication Work (Crews)	2,165	70,096	134	32
Worked by Scouts	97,965	23,472	41	0.24
No. Ribes pulled in checks not included above	_____	<u>2,373</u>	_____	_____
Totals	114,889	1,283,439	5,002	11.18
Total bushes, both wild and cultivated			1,288,441	

The total cost to all parties amounted to \$16,940.47, a per acre cost of 15¢. The scouts eliminated an area of 149,109 acres which did not need to be worked.

It will be noted that we had a successful season in Maine regardless of the present business depression.

W. O. Frost, Maine.

NOTES FROM NEW HAMPSHIRE

Comments on the Conference

The consensus of opinion among the New Hampshire agents was that the 1931 Annual Conference was productive of much valuable information. They are still discussing the merits of some ideas presented at the Conference, especially Al Fivaz' suggested "Key for Classification," etc. and the Demonstration Tour under the direction of Mr. Riley. They found much of interest in the various papers and talks. The time-factor they felt prevented discussion of some of the papers by the agents. The practice of having men from various Washington Bureaus on the program seems to meet with universal approval and benefit. The proposed idea of having the conference at Washington in 1932 has all the agents talking. They believe that much good may be derived from meeting there.

Winter Work in New Hampshire

Since the annual conference the New Hampshire agents have been busy determining definite control area in those towns where compulsory eradication is probable. It is the feeling of the State Forester, Mr. Foster, that this is essential in order that control work in these towns may be so planned as to give protection to white pine growth according to its importance and necessity; to eliminate from immediate consideration areas having little pine and to eliminate definitely areas in which there is no pine.

The first step in the program is to plot on U.S.G.S. maps the location and limits of white pine in each block. Once the pine is definitely plotted the protective strip is added. This procedure followed block by block develops a complete picture of the control program to be applied.

Decision is to be made as to which block is to be worked first and the blocks that are to follow in order of importance. Those blocks where the pine is of the least consequence will be left until the latter part of the control program. Descriptions of growth, infection and Ribes conditions (estimated by knowledge of previous work in town) made of each block will aid materially in arriving at such decisions. This plan insures giving protection where it is most needed at the earliest possible moment.

Poor weather has delayed the progress of this work tremendously, but an effort is being made by New Hampshire agents to complete it by the middle of January. We have had a great deal of rain in the past six weeks in New Hampshire. It is badly needed, however, to fill the farmers' wells. So while it interferes with the agents' field work somewhat, it is a boon to the farmer.

Agent Richardson of District #5 reports that while preparing control area maps in his district he has noticed "that there seemed to be a number of new pine infections showing up and that damage was becoming much more noticeable as we went over the roads than was the case two or three years ago." This has also been the experience of the other agents.

Signs of Spring

For a few moments thoughts of spring raced through the minds of Agent Tom King and Inspector Ed White when, on November 17th, they discovered a small snake twelve inches in length wriggling through the grass in the town of Canterbury. A protracted stretch of warm weather in early November reminded one of coming spring rather than of winter.

Thos. J. King, N.H.

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TEAMWORK

The following letter from Mr. Hodgkins to Mr. Filler has a real interest. It not only shows how teamwork gets results, but it indicates as well the role of black currants in establishing centers of infection and the further fact that the rust can be found even where white pines are not abundant:

"Dear Mr. Filler:

With a little teamwork, blister rust was found on pine in the town of Chicopee today. Agent R. E. Wheeler, and his maps and records of places where Ribes nigrum were destroyed the past season, were strong factors in the search even if the pines were a little over a thousand feet from the Ribes location and also heavily screened by hardwood brush.

A search was made in the above town last winter but the disease was not found as the location was one of those that could not be reached due to the conditions of the roads at the time. This completes the towns in this section of the State, so far as the location of blister rust on pines is concerned. It shows that the rust can be found even where white pines are very scarce.

Very truly yours,

(Signed) L. W. Hodgkins,
Agent, Blister Rust Control"

December 22, 1931.

C. C. Perry, Mass.

RODENTS FEEDING ON CANKERS

Agent White's (Me.) item in the December issue of the NEWS headed "Squirrels" leads me to report my most recent observations on the subject of rodents feeding on blister rust cankers. I have previously commented on the matter and it seems to me that every time I observe this feeding the damage is more severe. On this occasion, therefore, I again report that I have never observed such intensive feeding on cankers as I did in December 1931, during observations in some of our most serious infection areas throughout Massachusetts. The feeding seemed to be rather general, but was perhaps the most intense in Agent Clave's district, especially in the town of Ashburnham. In one plantation in particular, scars three or four feet in length were in evidence where some animal had been feeding within a few hours.

I say "some" animal, because in all my travels through infection areas, where this feeding was in evidence, I have never seen the "critter" at work. Here is a riddle then that would be at least interesting if not important to solve. If my recollection serves me, I have only noticed two animals which I might at all associate with the canker feeding. In one instance, a rabbit was seen in the area, and in one other case a red squirrel.

The feeding in the Ashburnham lot was so recently and so vigorously done, that fresh teeth marks were readily visible at the edges of the gnawed bark. These marks were so much in evidence, that a sizeable sample of the remaining bark on one tree was cut off for the purpose of having the teeth marks identified if possible. Upon my return to headquarters the specimen was submitted to a naturalist of ability, and he was of the quite definite opinion that the creature involved was the red squirrel. It appears that this animal is known to do some injury by gnawing the bark of the sugar maple, apparently intent upon obtaining the sugar content involved. Many of us have often thought that the animals responsible for the feeding on infected pines were seeking the sweet element associated with the pycnial stage of the rust. Perhaps our opinings were more or less accurate, but I am still hoping, however, to observe the "tree surgeons" actually at work.

January 3, 1932.

C. C. Perry, Mass.

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NEWS CLIPPINGS

At the request of the Washington Office a number of the agents have sent in numerous items of news culled from various papers. Suprising, however, was the fact that in many instances there was neither the title of the paper, place of issue, nor the date. These 3 items are as necessary with clippings of newspaper articles as the title, date, legend and maker of a map, or the title and date of a manuscript.

R. G. Pierce

PORCUPINES NOT PARTIAL IN THEIR CHOICE OF TREES

White pine does not seem to be as tempting to the palates of Carrol County porcupines as other softwood trees.

In one plantation of white and red pine porcupines have girdled a large number of the red pines leaving the white pines untouched. In another place Scotch pine has been "porky's" choice although white pine are growing in the immediate vicinity.

A natural seeding of red and white pine in a pasture near an old set of buildings has been their favorite restaurant. Here the red pines are again their first choice, with perhaps 50 girdled compared to a very few white pines.

In a fir, spruce and white-pine plantation, the fir has suffered the most damage from porcupines, with the spruce next, and no white pines damaged. In most cases they seem to eat a strip all the way around the tree even if it is a narrow one.

If they would only switch to Ribes?

S. H. Boomer, N. H.

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MAKING USE OF OLD ISSUES OF THE BLISTER RUST NEWS

During the past few days I have been trying to work up some new ideas on maintaining public interest in white pine blister rust control. My idea is to work up a general circular letter which I could use for the different towns in my district, changing it only where local conditions are mentioned.

I spent some time writing two or three different letters which failed to satisfy. Then I decided to look over my files of the Blister Rust News. Here I found many different types of letters which had been used in the past in other states. From ideas which they suggested, I am now working up the letters I need and which I think will be new to the pine owners and leaders in my district.

G. F. Richardson, Jr., N.H.

ANOTHER ORIGINAL PLANTING OF BLACK CURRANTS FROM ENGLAND

During the past season, we found one batch of Ribes nigrum which had been brought directly from England many years ago. The farm on which the plants were growing was abandoned, but the land had never been out of the hands of the heirs of the original owners. From information gathered in the neighborhood, it is assumed that this property was an original land grant from the King of England or the Governor of Massachusetts. It was practically impossible to determine the age of the plants. Nearby there are scattered white pines, principally young trees ranging under fifteen years old. Blister rust is very prevalent in the area, with many dead and dying trees, and a high percentage of infection. There is no question but that the black currants were responsible.

December 28, 1931.

R. E. Wheeler, Mass.

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ARE WHITE PINE SUITABLE FOR THE ADIRONDACKS?

(Copied from the Questions and Answers Column of
American Forests, November 1931, page 701.)

QUESTION: On page 248 of the April issue of American Forests, among trees recommended for the Adirondacks are white pine. I have driven many years from Saratoga to Elizabethtown and I have noticed the white pines along the road. They are bushes and will never be trees on account of the borer which begins on the leader and then attacks the leader of each limb. Until the borers disappear it is futile to plant the white pine yet in Saratoga Springs the Conservation Department has acres of seedlings and recommends them. Why not plant a pine immune to the borer?
--L.R., New York City.

ANSWER: Your reference to the attacks of white pine weevil is very much to the point, but in a region like that which includes the Adirondack forests, white pine is the most satisfactory tree to grow.

More about white pine weevil can be learned by reading Bulletin No. 449, issued by Cornell University at Ithaca, New York, entitled "Control of White Pine Weevil."

You will recall that red pine, white spruce, Norway spruce and hemlock were recommended for Adirondack planting in addition to white pine. Red pine is especially fine in that region but for growth and ultimate wood products it does not compare with white pine.

Careful studies of several stands of white pine in the vicinity of Saratoga Springs and Elizabethtown, New York, show that over a period of forty or fifty years white pine may average nearly one thousand board feet of wood an acre a year. No other tree in that region can produce such a yield.

In spite of white pine weevil and white pine blister rust it would be as foolish to discourage the planting of white pine as to discourage the planting of potatoes because of the Colorado potato beetle or any one of the various fungus diseases. On sites not adapted to white pine, however, some other tree should be planted.

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"VALUE" OF BLACK CURRANTS TO THE OWNER

There are many peculiar reasons given by the possessor of black currants as to why such bushes are needed for household or other purposes. One woman in particular hated to have her bushes removed on account of the food value for birds. Dried berries are used to make a tea which will cure most any kind of bodily ailment suffered by mankind. The bark of the bushes steeped in boiling water is said to be particularly good for insect bites and burns. Jams, jellies, and wine with the accent on the wine seem to be predominating uses. If the doctors only knew of the many medicinal values of the black currant, it is likely that we might have serious opposition from the medical fraternity. Needless to say, many of the cures are imaginary or at least they result from some other factor involved in the treatment.

December 24, 193 .

R. E. Wheeler, Mass.

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EXTERMINATING WEED TREES

Sodium arsenite proved practicable as a means of killing the crowns and root systems of aspen and pin cherry in experiments carried out by the Cornell Agricultural Experiment Station. A high concentration of the chemical was required, but only small quantities were needed. Similar success resulted from experiments with sodium arsenite as a means of eliminating hawthorn from pastures. On a representative area where hawthorn stems, averaging seven feet in height, numbered nearly 1,500 per acre, ninety per cent of these trees were killed by a single treatment which required one and one-half gallons of poison and five hours of labor an acre.

Members of the college staff have designed a new tool which will materially reduce the labor cost of tree poisoning. With this tool a single operation suffices to make the incision in the base of the tree and introduce the chemical into it.

(Extract from American Forests, November, 1931, p. 690.)

Edit: Page the Western Office. This may be of interest in those States that have to deal with the tree-sized Ribes bushes.

BLISTER RUST ACTIVITIES IN OTSEGO COUNTY, NEW YORK

During the season of 1931 approximately 4,000 acres have been covered in Otsego County for the eradication of currants and gooseberries to protect private plantations of white pine from white pine blister rust. The townships of Westford, Decatur, Roseboom, Burlington and Edmeston have been covered, road by road, and house by house, for the eradication of the English black currant "Ribes nigrum".

In addition to the private work, about 5,000 acres have been covered on the State Hewitt areas in this county.

The same work, covering Hewitt areas, was carried on in all other counties in which the State has bought land on this basis and planted it to white pine. Approximately 1,000 acres were covered in Chautauqua County, 800 acres in Cattaraugus County, 700 acres in Steuben County, 3,000 acres in Allegany County, 1,200 acres in Livingston County, 1,200 acres in Broome County, 3,000 acres in Chenango County, 700 acres in Madison County, and 1,600 acres in Cortland County.

N. H. Harpp, New York.

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A QUOTATION FROM A CONVERSATION WITH A LARGE PINE OWNER IN STRAFFORD, N.H.

"When you tell us how many acres you have covered and what the cost per acre is, we listen but sometimes it does not sink in very deeply. Personally, I am not interested in how many thousand bushes you fellows pull up. We all know there are lots of them. If, however, I find some on my property after you have gone over it I question the value of the work. Probably in the future we won't remember the cost and other details, but we will be observing whether or not the rust has been stopped, and this is one of the main points by which your department will be judged."

W. J. Cullen, N. H.

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AGENT RITTER PRESENTS BLISTER RUST CONTROL TO MINNESOTA SCHOOLS

I am giving lantern slide lectures and showing motion pictures now and for the next four weeks. I talked in five schools to about 1,000 pupils last week and showed my motion pictures to about 700.

Jan. 11, 1932

L. B. Ritter, Minn.

MORE ABOUT THE BLACK CURRANT PROJECT

Although the black currant project in California has been completed for two years, after a six years' campaign, I read with considerable interest the progress of the work in the Eastern and Middle-Western States.

The many "trials and tribulations" incidental to the prosecution of such work are well known to the writer, particularly the inability of foreign people to understand the English language, let alone appreciate the reason for such work. However, I imagine this factor has been less pronounced in California than in those States further east, with communities of considerable size made up wholly of foreign nationalities. In this State there are a number of segregated areas, the preponderance of which are either Scandinavian (Danish or Finnish) Swiss, Portuguese, Mexican, French, Japanese and Indian. The Scandinavian people with few exceptions, understood our language better than some of the others; they possessed as a group the largest number of plantings and were the hardest to convince that their bushes should come out. The Swiss, Portuguese and French were less able to understand the language, but more readily acquiesced to the removal of their bushes. The inspector ordinarily made himself understood. An inspector with a smattering of Spanish could easily "get by" with a Mexican but we had no one to cope with the Japanese or the Indian. The usual "me no understand" or a shrug of the shoulders was always forthcoming. Occasionally, the opportunity arose where some member of the second generation could be approached, who with bated breath would break the news to the parent. Fortunately the Japanese and the Indian did not grow currants, the latter little or nothing for that matter. The Mexican, almost always with a small garden, rarely possessed the black currant.

One enterprising inspector, in working a French and Swiss community, prepared the following approach: "Je suis du departement d'agriculture des Etat Unis, et je suis charge de detruire les buissons de cassis en raison d'une maladie qui existe sur les buisson. Si vous voulez bien me dire s'il en existe sur votre place." (Edit: This last sentence perhaps might better be put "Si vous voulez bien me dire s'il y'a sur votre jardin".)

The thought conveyed by Mr. Wheeler's article in giving some consideration to linguistic ability in selecting inspectors for black currant work should not be taken lightly - there is real merit in it.

G. A. Root, Calif.

Edit: We are very pleased to receive news articles written by the Western men, such as the above.

AGENT DOORE FINDS BLISTER RUST LATE IN THE SEASON IN CONNECTICUT

During the conference at Lakeville, Connecticut, Agent G. S. Doore found what appeared to be blister rust on a white pine (Pinus strobus) needle. The needle was picked up on October 30th in Plot 2, Scoville Estate, Salisbury, Connecticut. It was handed to Dr. G. P. Clinton of Connecticut, who had it sectioned and determined that the yellow spot on the needle was blister rust in the incipient stage. Dr. Clinton says:

"The pine needle you gave me at Lakeville has been sectioned by my assistant, Dr. McCormick, and we found in the lower evident spot, which I was doubtful about being caused by blister rust, sure signs of mycelium and the characteristic sclerotia of the blister rust. In one of the other spots Dr. McCormick is fairly sure the rust was also present, although the sections were rather poor. Of course one cannot be sure whether the infection resulted from this or last year; if they came from this year, they must have been infected quite early in the season to have attained such prominence."

L. W. Hodgkins

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RESULTS OF CONTROL WORK IN MICHIGAN STATE PARKS

The following items, which was taken from one of Mr. Stouffer's reports, was sent in by Agent Thompson of Michigan:

"Rechecked the control work at Interlochen State Park and found one large bush missed by the crew, two bushes were sprouted from the ground due to poor pulling, and 18 bushes which have grown up since the eradication work was carried out in 1929. I believe this to be a very effective control project. As I only took one trip through the Ribes area it is very possible that I might have missed several bushes, but certainly the danger has been reduced to a minimum in this particular part.

"Also inspected the Cheboygan State Park and the Black Lake State Park at Onaway. Found a few bushes at Cheboygan and only three at Black Lake, so believe both of these control projects have proven very effective."

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ERRATA

Unfortunately, through a multigraphing error the Blister Rust News, Vol. 15, No. 11, was given the month of October rather than November. The Office was only able to catch a limited number of publications before they went out, hence could not restamp the date on the major portion of the issue.

R.G.P.

WHITE PINE BLISTER RUST CONTROL

Work in National Forests and Control of Plant Diseases.

**** For the fiscal year 1932, \$800,000 was made available to build a forest products laboratory at Madison, Wis., and \$150,000 for white pine blister rust control in addition to the usual appropriation for that purpose. ****.

Investigations completed late in 1930 showed threatening developments in the white pine blister rust situation. A rapid and devastating spread of this disease was discovered in the commercial areas of western white pine in northern Idaho and in adjacent portions of Washington and Montana. White pine stands over extensive areas will suffer maximum damage by the rust during the next 10 or 15 years unless the disease is controlled. Control is possible only by the systematic eradication or suppression, in or near pine stands, of currant and gooseberry plants (*Ribes*). This is a more difficult and costly task in the Western than in the Eastern States. Many of the pine areas are difficult to reach with labor and supplies; wild currant and gooseberry bushes are abundant; control measures must be concentrated within a short period each season; and mixed ownership of large tracts of wild lands makes control operations difficult. Control is nevertheless possible, provided effective methods are systematically applied on an adequate scale. ****.

(Extract from the Report of the Secretary of Agriculture, 1931, p. 50,65.)

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CULTIVATED BLACK CURRANT ERADICATION IN MICHIGAN - SEASON OF 1931

Summary by Counties

<u>County</u>	<u>Owners</u>	<u>Bushes</u>	<u>Infected</u>	<u>% Infected</u>
Baraga (finished 1931)	75	826	None	None
Iron	108	1,299	199	15.4
Muskegon (finished 1931)	39	808	None	None
Oceana	<u>90</u>	<u>2,729</u>	<u>173</u>	6.3
	312	5,662	372	

Average number of bushes per owner 18.1

Per cent of bushes infected 6.6

In Oceana County 3,440 interviews with private owners were made. Mr. Thompson states that there was a complete destruction of all black currants (*R. nigrum*) in Oceana County.

R. I. Thompson, Mich.

COOPERATION IN MASSACHUSETTS

In one of the towns on my 1931 list, preliminary interviewing showed that the older inhabitants were of the sturdy, self-reliant, self-sufficient type. These residents did not take at all kindly to outside help or to what they chose to call "State interference with town affairs." They seemed to think that they could handle the blister rust control situation in their own way if at any time it was found necessary to do anything at all about it, and if at that time the State insisted on having control work done. Such inquiries as what would be the pay they would get for doing the work on their own property, and what would be the rate of reimbursement for cultivated Ribes destroyed were common. In addition to the older land owners, we found that the newer settlers, mostly of foreign extraction, seemed silent and sullen.

After our initial contacts were complete, we set about procuring our ammunition and in the early days of spring all plans to meet the conditions were ready. Our first step was to put up a window display in the most prominent store window in the town. This display consisted of a stereomotograph showing a line of pictures and reading matter explaining blister rust and the necessity for its control. This was during the last two weeks in March.

Early in April we erected a roadside display of the Doore-Enders-bee type on the main highway which traverses the town. This exhibit was located immediately adjoining a plantation of white pine in which a blister rust damage plot was laid out for demonstration purposes. Consent to use this plantation, by the way, had been secured from a very reluctant owner who on the occasion of our first contact, had warned us in no uncertain terms not to trespass on any of his lands under the penalty of prosecution to the full extent of the law. Other means of suppressing us were also intimated. That is a tale in itself, however. The point is that we secured permission to use the area.

After our exhibit was in place and the demonstration plot in order, we induced the two officers and other prominent citizens to look over the material. As a result of their visits, they were completely convinced that blister rust is already established in the town and conditions constituted a menace to the property of the pine owners. Our visitors were requested to inform their neighbors regarding the situation, and they were advised that free assistance by the State could be had if owners would be ready to cooperate when the services of the blister rust control organization would be available later in the season. We stressed the point that the property that was to be protected belonged to the local residents and that the job to protect it was theirs. The blister rust control workers would act only in organizing and actually supervising the work in the field.

Our next step was to develop our demonstration plot further by brushing out a central path with laterals to include the most severely damaged pines. All trees were plainly marked so that any interested party could see blister rust damage for himself. Every effort was made to appeal to the self-reliance of the individual. In other words, we wished them to see conditions for themselves if they so desired.

In the meantime, we had prepared a mailing list of pine owners and other prominent residents. This list was secured through access to the local assessors. This mailing list was used to send, at two intervals, departmental circulars regarding blister rust. The first leaflet was mailed just after the interest in our roadside exhibit seemed to be waning, and the second circular was sent just before we started our campaign to secure the actual participation of owners in the removal of Ribes. This completed our campaign to overcome the resistance that threatened.

This campaign proved to be a complete success, and as a result we were able to secure a complete clean-up of all wild and cultivated Ribes in the entire town. From a list of 103 cooperators, we secured the actual cooperation and participation of practically 100% of the pine owners. With but one exception we were favored with the cooperation of the owners of 76 lots of cultivated Ribes.

In closing, let me say that under the Massachusetts policy, we always try to work from what we find to be the owner's viewpoint; make him realize that the necessity for the work exists; that the job of protecting his property is his own, and that we are only there as friendly helpers and advisors.

December 28, 1931.

W. T. Roop, Mass.

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AGENT BROCKWAY PRACTICES FORESTRY ON THE HOME LOT

While on annual leave recently, I put in most of the time in my woodlot cutting wood for the fireplace this winter.

About two acres of this woodlot were clear cut five years ago and planted to white pine, red pine, and Norway spruce. The area has been weeded twice since planted, and will be so treated this winter for the third and last time. After having seen the areas in Lakeville at the recent conference, I might add that I am leaving all the white ash that are coming up. It is interesting to note that the white pine on this lot has not been weeviled, due to the fact that the red pine is advancing ahead of the white pine somewhat, and also due to competition of young hardwoods.

November 18, 1931.

E. M. Brockway, Mass.

UTILIZATION OF POOR QUALITY WHITE PINE

It may seem a big jump from blister rust control to the utilization of pine but unless we can continue to show the pine owner that it is a profitable practice to protect his pine areas from blister rust, our problem will become more difficult as time advances. Ten years ago white pine stumpage sold for from \$8.00-\$14.00 per M. During the past 5 years prices have steadily decreased. Stumpage that formerly brought \$12.00 per M can be purchased for \$6.00. Recently a sawmill owner showed me some white pine lumber of good quality that he was offering for sale at \$12.00 per M. No doubt present economic conditions have a great deal to do with present day prices, but if some means were found to utilize pine of poor quality it would be of tremendous help.

Jan. 4, 1932.

F. H. Rose, Vermont.

Edit: The agents should fully realize that a study of the log prices over a long period of years will show a gradual increase in the price of stumpage. Today, for second-growth white pine timber we are at the bottom of a curve; yesterday, and that was less than 10 years ago, we were at the top of a curve; tomorrow we will be swinging towards the top again. In this connection it would pay to reiterate the statement of Henry Steer, Forest Economist of the U. S. Forest Service, who is quoted in the December issue of the Blister Rust News (page 305) as follows:

"The danger lies in assuming that present conditions will hold in the future, and in overemphasizing the low prices which may have been realized by a few forced sales of stumpage. The owner of standing timber need not except under unusual circumstances, dispose of his timber in an unfavorable market, but can, ordinarily afford to hold it until market conditions improve. This is one of the favorable characteristics of timber as a crop and should receive the careful consideration of those having timber to dispose of."

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AMERICAN LEGION REPLACES TREES DAMAGED BY BLISTER RUST

While making a control area map State Inspectors J. H. Cullen and E. J. White located a badly infected area on and adjacent to the property of Camp Manning, a boy Scout Camp located in Gilmanton, N. H. A sufficiently large number of pines to seriously affect the scenic value of the camp are already infected. This unfortunate situation has, however, been offset by planting 10,000 white pine transplants donated by the State Forestry Department, the labor being furnished by the American Legion. The eradication of Ribes carried on during the past season together with blister rust educational work with the scouts will not only give needed protection to the plantation but disseminate blister rust information among the parents of the boys and visitors at the camp.

W. J. Cullen, N. H.

HODGKINS REPORTS ON AN INSPECTION TRIP THROUGH SOUTHEASTERN MASS.

I have been working with Agent Brockway looking over some of the old infection areas. Conditions are quite interesting. Some of the areas, where much damage had not been done at first, now show that the real damage is very apparent, especially the Duxbury area. It is an area of large pines extending about 3,000 feet to the southwest and approximately 1,500 feet east and west. On the westerly side, pasture type of pines break into the stand here and there so that the stand is not a full stocking of large trees. The infection is scattered throughout the stand; some of the pasture type of pines are dead and others are barely existing. The large trees, at least most of them, are still alive but show severe constrictions and other evidence that the rust has been in the stems of the trees for some time. We walked through the stand and back, and counted about a hundred trees either dead or in a dying condition. I knew the rust was in this stand but did not expect to find it had gone so far out from the infecting Ribes. This infection came from Ribes nigrum.

In looking over the surroundings of the Pembroke area, we saw one of the best reproductions of white pine I have ever seen. It is just north of the open field. The stand is about 15 years old and should be seen to be appreciated.

On the 17th of November we found American black currant seedlings, Ribes americanum, with both uredinial and telial infections on them. Due to the lateness of the season I collected some specimens and sent them to Dr. Spaulding. The Ribes on this area were eradicated last season and Mr. Brockway says that they showed considerable infection at that time. We found some young cankers on the pines nearby.

At the Halifax Gardens in Halifax the seed bed has been taken out and the entire nursery is now a grass field.

We looked through the stand of native pines across the road and found 20 to 25 trees that have old cankers, some other trees having died with blister rust. This infection dates back to 1914. We also found some cankers back from the road to a distance of 200 feet and about 200 feet along the road.

In the Jacobs lot on Franklin Street, in Hanson, some of the earlier infected trees have died from the disease and a few are still lingering along. Recent infections were found in one place and 1928 cankers in others. At first we did not see the Ribes but a close search proved that at least one was present. This bush was not over 10 inches high but had caused infections on 8 or 10 small white pines. The ground was gone over very carefully but no other bushes were found. This is a case where a small bush was doing damage. Of course, it was in among the pines.

At Marion we went over the Town Forest and the immediate surroundings and saw 51 large trees with stem cankers, some of the trees being sixty feet in height. This infection was caused by cultivated red currants on the Hosmer property and across the road from the Town Forest. There is a good healthy reproduction coming in.

Mr. Brockway and I spent a little time in the town of Wareham and found a few infections on young pines near an old-cellar-hole just off the Pierceville and Mary Pond Roads. One gooseberry bush is present that evidently had been under cultivation at one time but is nearly smothered by briars and only the terminals of the stems are above these briars. I believe that this infection is the first to be found in the town if not the only one found since we started our present program.

L. W. Hodgkins, Mass.

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GRAFTON COUNTY (N. H.) FORESTRY COMMITTEE HOLDS MEETING

The Grafton County Forestry Committee held a meeting recently at the Farm Bureau office in Woodsville, N. H. Many problems concerning the farm woodlot were discussed and resolutions adopted for the coming year. From the viewpoint of the writer the most interesting subject was the FUTURE OF WHITE PINE in New England.

Mr. O. M. Pratt of Holderness, N. H. who is known far and wide as a successful pine operator and owner, made the statement that he "holds out great prospects for the marketing of white pine within a very few years. The present low market and the meagre cutting of pine for this year are not an authoritative basis for judging the future. There will be a large demand for native white pine within the very near future, but it must be of good quality," says Mr. Pratt.

Mr. Pratt bases his judgement on "fluctuations in the past and the fact that contractors will be calling for native pine in preference to that from the South and Pacific Coasts. Architects are now beginning to realize the sterling qualities of our native white pine and mentioning it in their specifications."

In the opinion of the writer, Mr. Pratt has always been very conservative in his statements and in most instances has always "called the turn." It was with extreme pleasure that we listened to his optimistic remarks.

Thos. L. Kane, N. H.

SOME DATA ON SNAKES FROM THE LOWER HUDSON VALLEY

Mr. H. L. McIntyre in letter of December 31 to Mr. Pierce writes:

Last summer you succeeded in getting some information from snake experts on time of day, weather conditons, so on and so forth, and that one was most liable to encounter poisonous snakes in sections inhabited by them. I am attaching herewith a summary covering quite a few that have been killed by boys of the Conservation Department in connection with their field work. I thought probably you would be interested in looking this tabulation over. You will note that in not a single instance do our records indicate that a snake was killed when it was cloudy. Another interesting feature of the tabulation is that it shows that the snakes got out quite early in some sections and also stayed out rather late in the fall. We might also say that some of them travelled around some at night.

This tabulation does not by any means constitute all the snakes that have been killed by our men. It does, however, show that as all this information has been collected in the lower Hudson Valley, the supply is quite plentiful, at least sufficient to keep men who are greatly afraid of snakes stirred up most of the time.

Copper-head	Rattler	Date	Hour of Day	Weather Condition	Temperature	Elevation Feet	Warning Sounded
	1	July 1	4:10 p.m.	Clear	90	2,000	None
	1	Sept.8	10:30 a.m.	"	85	2,000	"
	1	Sept.9	11:00 a.m.	"	80	2,500	At about 3 feet
	1	Sept.10	8:15 a.m.	"	70	2,300	6 " "
	3	Oct. 3	11:45 a.m.	"	80	2,400	None
	1	Aug.	10:00 a.m.	"	90	1,500	"
	1	Sept.11	10:30 a.m.	"	90	1,800	Yes
	1	Sept.11	3:45 p.m.	"	95	Low	"
	2	Sept.12	10:00 a.m.	"	90	2,300	"
	1	Sept.13	10:00 a.m.	"	90	2,300	None
	3	May 15	?	?	?	1,000	?
1		June 15	8:00 a.m.	Clear	85	Lowlands	
1		July 1	11:00 a.m.	"	90	Near swamp	
1		July 1	9:00 p.m.	Warm	Run over by auto		
8		July 5	4:00 p.m.	Clear	95	Lowlands	
7		July 6	9:00 a.m.	"	80	"	
3		Sept.10	10:00 a.m.	"	80	"	
1		Sept.10	3:00 p.m.	"	95	"	

In addition to the above there were six rattlers killed in Dutchess County during July and August, between 12:30 and 4 p.m., all at an elevation between 900 and 1,000 feet. In no case was there any warning given until they were molested. We also have a record of 3 copperheads and 3 rattlers being killed on the same day in the same den. We have no definite data concerning the hour of the day, temperature, etc., when this occurred.

Edit: An analysis of the table will reveal no records of snakes killed when the weather showed a temperature of below 70.

MAPPING AND CLASSIFYING PINE IN NEW YORK

During the fall I assisted at the Albany Office in preparing the annual reports, both State and Federal. At other times I have been scouting, mapping and classifying pine in Greene and Ulster Counties. This sounds almost like a repetition of the work done here in woodland type mapping but it is much different. In the first place road blocks for this work are selected from the woodland type maps. Those blocks showing pine generally scattered throughout the block are selected. The road block is enlarged to a scale of 4 inches to the mile and is made on the regulation Department stationery in India ink. The map is in reality an enlarged U.S.G.S. map showing streams and houses but no countour lines. This map can be folded twice reducing the size to $4 \times 5\frac{1}{2}$ " which conveniently slips in the back of the cross-section field note book. In addition to the map I have a compass for laying my courses and a counting meter which slips over a gloved finger. In pacing I use the ordinary military step and count every right foot pace, multiply the numbers of paces by 3 and divide by 10 getting my distances in rods which work out very nicely on this scale. Open fields and woods are all mapped to approximate correct acreages. The legend used in mapping is as follows:

Green crayon markings	-	#1 pine	(as used in New York State last year)
Red	"	"	- #2 " " " " " "
Brown	"	"	- #3 " " " " " "
Yellow	"	"	- all other stands of timber
c	-	for tilled fields	
p	-	" pasture land	
of	-	old abandonded fields	

A road block of around 1000 acres can be mapped in this fashion in about a couple of days. This is assuming that the greater part is in woods, and a close inspection made in isolated fields where reproduction might be taking place. I am suprised at the accuracy of the work and how easy it is to do it. The winter time when snow is not too deep and temperatures fairly mild affords an ideal time to do the work. The foliage conditions are ideal affording the very best visibility. From the brief experience gained in this work in selected road blocks I believe it is very profitable employment this time of the year. The maps are bound to be of great value to any blister rust employee.

January 10, 1932.

H. G. Strait, N. Y.

CORRECT USAGE OF WORDS

The Washington Office has been interested in learning whether the word "reconnaissanced" was correct, and when to use "infect" or "infest". The following letter gives the opinion of the Lexicographer of the Literary Digest:

The Lexicographer's Easy Chair
THE LITERARY DIGEST
354-360 Fourth Avenue
New York, New York

January 11, 1932.

Miss Doris L. Parmele,
1604 17th Street, N.W.,
Washington, D. C.

Dear Madam:

Reply to your inquiry of some time ago about "reconnaissanced", there is no such word. The verb is reconnoiter and the noun reconnaissance, though these terms have a primary military significance and surveyed would be more appropriate to the passage.

The word infect means 1. "To affect sympathetically or by communication; imbue, especially with a noxious quality or principle; taint; render depraved." 2. "To implant the germs or bacteria of disease or of fermentation; contaminate with infectious matter; as, the child is infected with scarlet fever; germs of typhoid infect wells." Infest means "to be present in so continually or in such numbers as to be a source of annoyance, trouble, or danger; overrun; haunt; beset." Therefore, "the infested (overrun) areas of Idaho" is correct.

Owing to the fact that the Lexicographer had to undertake other work, his correspondence had to be put aside until such time as he could attend to it. Hence, the delay in answering your communication.

Yours very truly,

THE LEXICOGRAPHER.

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TRAVELING EXPENSES - TIPS TO HOTEL PORTERS

The Act of February 14, 1931, 46 Stat. 1103, provides for reimbursement for the operation of personally owned automobiles at certain specified rates. This reimbursement is in lieu of actual expenses for transportation and inasmuch as tips to hotel porters are expenses of transportation they may not be allowed when operating a personally owned automobile on a mileage basis.

SHEEP NOT PARTIAL TO SKUNK CURRANTS.

Several items have appeared in the Blister Rust News relative to the possibilities of sheep restricting the growth of Ribes. I ran into rather an interesting development along this line this season in the town of Canterbury, N. H.

A number of sheep were pastured in one of the plots we were working. They had done the usual job of nibbling the smaller vegetation. In the area in which they fed we found a skunk currant patch of fair size. Not a bush had been touched! With the surrounding vegetation cleaned out, this patch of skunk currants stood out like a danger signal. The sheep had apparently shunned them as they would the animal from which these bushes derived their name. And I don't know as I blame them. They might have saved our crew quite a bit of work had they not been so fussy.

T. J. King, N. H.

P U B L I C A T I O N S

Blister Rust

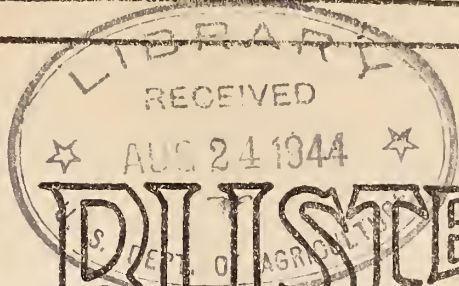
Anonymous "Forestry Appropriations". In Journal of Forestry, December 1931, pages 1213-1214.

White Pine

Emig, W. H. "The Megagametophyte of Pinus". In Science, Friday, October 2, 1931, p. 337.

"The proper view of the development of the megagametophyte of Pinus, as obtained by a study of a close series of Pinus flexilis and P. scopulorum collected in the Rocky Mountain National Park, Colorado, during the past three growing seasons, differs greatly from the present accepted description." The various phases of growth are listed in the article.

Fritz, Emanuel. (The term) "White Pine" Again Denied to Producers of Pinus ponderosa Lumber. In the Journal of Forestry, December 1931, p. 1210-1212.



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U.S. DEPARTMENT of AGRICULTURE
BUREAU of PLANT INDUSTRY
DIVISION of BLISTER RUST CONTROL

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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and Cooperating States

Vol. 16, No. 2.

February, 1932

1932 CONFERENCE COMMITTEE IS FUNCTIONING

Pursuant to the instructions of the 1931 conference at Lakeville, Connecticut, Mr. Filler appointed on November 30, 1931, the following general committee to recommend a program for the 1932 conference.

Connecticut - J. E. Riley, Jr.
Maine - Messrs. Frost, Kimball, and White.
Massachusetts - Messrs. Perry, Brockway and Clave.
Michigan - Messrs. Mandenberg, Kroeber, and Thompson.
Minnesota - L. B. Ritter.
New Hampshire - Messrs. Newman, Boomer, and King.
New Jersey - P. B. Mott.
New York - Messrs. McIntyre, Charlton, and Harpp.
Pennsylvania - Messrs. Fatzinger, Gackenbach, and May.
Rhode Island - A. W. Hurford.
Vermont - Messrs. Merrill, Bradder, and Rose.
Wisconsin - T. F. Kouba.

State Leader Perry of Massachusetts was designated by Mr. Filler to act as chairman of the committee as a whole.

Numerous suggestions have been submitted by the several subcommittees. As might be expected, there has been practically no unanimity of opinion about anything, except that the prevailing feeling seems to be that at previous conferences there have been too many papers and too little opportunity for discussion.

With the subcommittee suggestions as a basis, Chairman Perry has made up a tentative program proposal. The subcommittee reports together with the proposed program make up the first progress report of the Committee released on January 12. This tentative program will be criticized by the several subcommittees and a final program proposal will be prepared by the chairman and submitted to Mr. Filler early in February.

Jan. 30, 1932.

C. C. P.

1931 CONTROL WORK IN NEW HAMPSHIRE

Despite business conditions very satisfactory progress was made in the 1931 control work in New Hampshire. Initially eradicated areas were enlarged by 158,004 acres, from which 2,891,692 wild and 4,022 cultivated Ribes were removed. The substantial area of 21,380 acres was rechecked and 130,583 wild and 200 cultivated Ribes destroyed. This made a total of 179,384 acres examined and 3,022,275 wild and 4,222 cultivated Ribes destroyed for the season.

One hundred and twenty towns and cities and 20 individuals cooperated by furnishing 37,272.83 for the initial eradication; 12 towns and cities and 9 individuals by contributing \$3,011.09 for the rechecking. All town and individual funds were increased 25 per cent by State funds. The U. S. Forest Service cooperated in initial control on one project of 395 acres, spending \$360.56. Here 39,937 wild Ribes were destroyed, an average of 101 per acre. Three of the 1931 reeradication projects were on State Forests containing 284 acres. A total of 266 men were employed as follows: Crew men 219, foremen 21, scouts 23 and State inspectors 3. The control work was started early in May and terminated about the middle of September.

By adding the 1931 control results to previous years' work, New Hampshire has, to date, covered in initial eradication 2,590,352 acres and destroyed 34,583,460 Ribes; in reeradication work 353,753 acres. One hundred and one towns and cities have completed initial control work. Thirty-four towns and cities have participated in reeradication projects which are partially complete. Thirteen others have completed both their initial and reeradication work.

* * * *

Due to the general unemployment situation throughout the State a special effort was made to meet local situations by employing local help. To insure the securing of quality help it was required that local applicants be recommended by the Selectmen. Such precautions not only guaranteed the securing of the best available material but also resulted in the development of a better spirit in the cooperating towns.

* * * *

New Hampshire's Compulsory Law, by which the Governor and Council can order not to exceed \$400 worth of necessary control work done in towns designated by the State Forester and the Commissioner of Agriculture, was again invoked this past season. Thirty towns which made no appropriations at their annual town meetings were assessed a total of \$9,400; 10 towns whose appropriations were deemed insufficient to meet the needs had their appropriations increased a total of \$2,100. These funds were also increased 25 per cent by State funds.

* * * *

An interesting development in connection with the work in the towns where the Governor and Council ordered control work started is the turning up of new areas of infection and the greater freedom with which infection on pine can be found. One area in the town of Gilmanton is estimated to cover 500 acres; one in Sutton runs over several hundred acres on Kearsarge Mountain, and so on.

L. E. Newman, N. H.

BLISTER RUST DISCOVERED ON PINE IN WAUPACA COUNTY, WISCONSIN

Our records show that the first discovery of blister rust on pine in Waupaca County occurred this winter during the pine survey in that county. We have not completed this Waupaca County survey as yet, but to date we have found infections in Larrabee, Iola, and Helvetia townships in the northern part of the county and have also found one infected tree in Lind township which borders the southern boundary of the county. We have noticed that the greatest damage is in Larrabee and Helvetia townships, each of which has several very good pine woodlots. From our study of some dozens of trees we saw that a large part of the infections apparently occurred during 1927 and 1928. The survey has been completed over approximately one-half of Waupaca County.

I might add that in this survey we not only map the white pine areas, but we also make a preeradication survey of the pine stand and interview the owner relative to Ribes eradication.

T. F. Kouba, Wis.

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FOREST SURVEY CHARTS BEING USED IN SCHOOL

The forest survey charts recently sent me by the Washington Office have found a practical use in some of the different classes of the Lebanon, New Hampshire, high school. One of the high school teachers came to my office a short time ago and asked me for as much material on forestry as I could give her. I furnished her with a number of different things on blister rust and then showed the survey charts and explained them to her. She was much interested and asked that I loan them to the school for a while.

G. F. Richardson, N. H.

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WESTERN MEN GIVE INFORMAL TALKS IN OREGON AND MONTANA

Mr. L. N. Goodding, State Leader in Oregon, presented a paper on "The Blister Rust Situation in Oregon" before the Northern Pacific Section of the Society of American Foresters at Portland on January 28.

Mr. Charles H. Johnson, State Leader in Montana, gave an informal talk on "Brush Elimination as a Means of Permanent Ribes Suppression" before the Northern Rocky Mountain Section of the Society of American Foresters at Missoula, Montana, on February 1.

- 28 -

OUR DIVISION COOPERATES WITH JUNIOR FOREST RANGERS IN WISCONSIN

Mr. Wakelin McNeel of the University Extension Service, who is director of the Junior Forest Rangers of this State, has consented to cooperate with us in blister rust control work. The Junior Forest Rangers is a branch of the 4-H Club composed of young men between 16 and 21 years of age who are especially interested in forestry. During 1931 there were about 1,200 Junior Forest Rangers in Wisconsin. These young men planted approximately 400,000 trees, white and Norway pines chiefly.

Our office has prepared material on blister rust which Mr. McNeel plans to include in his bulletin "Outlines for Study and Directions for Work" which is sent to the Junior Forest Rangers yearly. Each Ranger must protect his white pine plantings from blister rust before he will be promoted in the organization, that is, before he will get the Achievement Award Emblem.

Some of the topics we enlarged on in our outline are as follows: What is Blister Rust; How Blister Rust Spreads; What Blister Rust Looks Like on Pine, on Ribes; Where Blister Rust Came From; How to Protect White Pines from Blister Rust; Organization and Guidance of a Crew; Time of Year to Begin Work; Records to be Kept; Outline of Report of Eradication Work to be Sent to the Madison Office; and Kinds of Ribes in Wisconsin.

T. F. Kouba, Wis.

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AGENT BROCKWAY REPORTS INTERESTING STUDIES ON CAPE COD

Although we sometimes think of Cape Cod in Massachusetts as a barren area where little forestry can be practiced, it is interesting to know that the State Forestry Department is conducting some experiments in this section of the State relative to the rate of growth of various tree species. These experiments are being conducted in plantations of loblolly pine, western larch, jack pine, Japanese red pine, Japanese black pine, and Scotch pine. One of the particular facts of interest in this locality relates to the natural seeding in of Scotch pine from plantations.

The plantation plots that have been established are located at various intervals on the 8,000 acre State Forest with the thought in mind that seed will blow from the mature trees some day and restock areas both within and without the State Forest.

January 30, 1932.

E. M. Brockway, Mass.

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UREDOSPORIA STAGE ON RIBES FOUND IN OCTOBER

While laying out 1932 eradication work in the town of Hillsboro, New Hampshire, on October 14th, the writer found a gooseberry bush (cynobati) 6 feet high with a spread of nearly 4 feet. No attempt was made to determine the L.B.S. Both the uredo and telial stages of the rust were found on the leaves, which were heavily infected. There was also infection on the surrounding pine.

T. J. King, N. H.

LUMBERING IN OLD INFECTION AREA AT HINGHAM, MASSACHUSETTS,
DISCLOSES HEAVY INFECTION

Last December Mr. Hodgkins and I reinspected the so-called Derby Street infection area in Hingham, Massachusetts. This area was one in which the late Dr. Pennington expressed much interest on his trips into Massachusetts. The infection was caused by proximity to a plantation of European black currants brought in from England in violation of quarantine regulations.

It was determined at the time the area was first found that 65% of the pines in a sample plot had been damaged by the rust. In December, 1931, we found that the area was being logged. In one corner of the lot we examined 15 or 20 pines that had just been felled. In this particular corner we had originally recorded no data, but our recollection is that not more than 4 or 6 trees were noted as having cankers. This corner of the lot is now clear-cut and every tree lying on the ground was found to be infected. This emphasizes the point that we cannot know how badly some lots are infected unless all trees are climbed and examined. It is unfortunate that we did not establish a detailed permanent plot in this area, because it now appears that the infection was much more serious than we had believed from the casual data collected. All of which points to the need for more detailed and accurate damage studies. This incident also indicates that it is practically impossible for an agent to keep sufficiently in touch with owners in his district to know what their plans are with regard to the management of their pine woodlots.

January 30, 1932.

E. M. Brockway, Mass.

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NATURAL SEEDING OF WHITE PINE IN RENSSELAER COUNTY, N.Y.

While talking with a farmer this fall I was informed that he had some idle land and that he would like to plant white pine seeds on some of it. Upon asking why he wanted to plant seed instead of seedlings I was provided with some information concerning a stand of white pine on an adjoining farm.

About 40 years ago Mr. W. decided to plow a 6 acre field and get it ready to plant to buckwheat in the following spring. He did so, but when planting time came he found that the area was densely covered with little pine. The field was left to care for itself and now is covered with a stand of pine that any pine owner would be proud of. The trees average about 7 inches D.B.H. and are little damaged by weevil or blister rust. Natural thinning and pruning is taking place and the owner is taking out the dead suppressed trees, adding considerable to the appearance of the stand.

After seeing this pine stand I could easily understand why the planting of white pine seed might be much in favor in that vicinity.

H. J. McCasland, N.Y.

SUMMARY OF BLISTER RUST CONTROL WORK IN NEW YORK FOR 1931

Noticing that our friend, W. O. Frost, accumulated sufficient courage to prepare a summary of the 1931 season's blister rust work in Maine for the last issue of the Blister Rust News induces a similar courage on the part of New York State.

For quite a few years it was customary to exhibit the results of the season's eradication work at the annual blister rust conference. Usually during those years, if one wanted to find the record of New York he looked at the bottom of the exhibit or lower. Unfortunately for New York, therefore, the summary exhibit was discontinued in the year they would have attained a space a little higher up on the chart. This is not a criticism of the program committee. New York approved the discontinuance of the chart summary. We had become reconciled to the foot of the class and were inclined to believe that our records would go by entirely unnoticed if it appeared in other than the last place on that chart.

The summary follows:

	<u>Area Cleared of Ribes (Acres)</u>	<u>Ribes Destroyed</u> <u>Wild Cultivated</u>	<u>Aver. No. of Bushes-per Acre</u>
Initial Eradication (Crew Work)	73,139	1,050,070 3,906	14.4
Initial Eradication (Scout)	36,664	98,276 1,062	2.7
Initial Eradication (State Lands)	<u>8,845</u>	<u>336,506</u> <u>21</u>	<u>38</u>
Total Initial Erad.	118,648	1,484,852 4,989	18.3
Reeradication (Crew)	4,134	18,449 67	4.
Reeradication (Scout)	1,584	1,041 --	.7
Reeradication (State Lands)	<u>9,107</u>	<u>11,379</u> <u>831</u>	<u>1.</u>
Total Reeradication	14,825	30,869 898	1.9
No. Ribes Pulled in Checks		5,243 (Included in Wild Ribes Total)	
Grand Totals	133,473	1,515,721 5,887	11.4

No. of towns in which work was done 532

No. cooperators 1,346

H. L. McIntyre, N.Y.

AN INFECTION STUDY IN CARROLL COUNTY, NEW HAMPSHIRE

In 1914, Mr. J. B. Hurlin of Jackson, New Hampshire, planted some white pine in an old field near the Glen Ellis River about 3 miles above Jackson village. It was not in a white pine section and the field was surrounded by hardwood and spruce and fir. It was not until 1926 that I made an examination of the plantation at the owner's request. It was found to be badly infected. As I mentioned in a previous article in the "News" regarding this plantation, there were beds of skunk currants all along one side near the river and scattered gooseberry bushes on another side. It was not practical to eradicate the Ribes. The following figures show the progress of the rust:

<u>Year</u>	<u>No. of Trees</u>	<u>No. of trees with branch cankers</u>	<u>No. of trees with trunk cankers</u>	<u>No. of healthy trees</u>
1926	211	83	63	65
1929	200	67	112	21
1931	201	31	152	18

There were 20 trees dead in 1931 out of the 152 with trunk cankers.

Cankers by years taken in 1929:

Years	'17	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	= Total	<u>11 years</u>
Cankers	60	51	92	92	207	288	273	415	402	188	4		2072 cankers

Last November when the trees were examined, very few new infections were noticed. The infected trees are dying fast and are being broken off by the strong winds which sweep down the valley. When the plantation is 20 years old I expect from 50 to 60 per cent of the trees to be dead.

S. H. Boomer, N. H.

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BLISTER RUST MATERIAL APPRECIATED BY COLLEGE

At the request of the Department of Botany of the North Dakota Agricultural College, a collection of specimens of blister rust, both pine and Ribes in various stages, together with an assortment of blister rust control pictures, were recently forwarded to them. That this material was appreciated is shown by the following letter:

"Dear Mr. Pierce:

I am certainly grateful to you for the splendid material of blister rust that you sent. We have placed these specimens in our display case and shall use them in teaching plant pathology.

(Sgd.) Herbert C. Hanson, Head
Department of Botany."

SPRING, THE BEST TIME TO ERADICATE RIBES IN RATTLESNAKE TERRITORY

In answer to a question by Agent Strait of New York relative to the safest period of the eradication season to work areas in which there are rattlesnakes, the writer is glad to offer his experiences in New Hampshire.

In the towns of Allenstown and Hooksett, which adjoin, there is a stretch of wild uninhabited country of some 26 square miles. In earlier days the diamond-back rattlesnake was quite plentiful. Later, fires and logging operations tended to reduce their numbers. Of recent years, however lack of human activities have undoubtedly enabled them to increase in numbers.

From the time control work was first started in that section until the 1931 season, these towns were worked either early in the spring before the rattlers became active or after the month of August, when they are considered most dangerous. The crew men never experienced any difficulty during the spring period and but once did they learn of a rattlesnake being killed in the fall.

This past year the writer was forced to switch plans and a crew worked in Allenstown from just before the middle of July until nearly the middle of August, probably the worst period of the year. They ran into difficulty. One of the men nearly stepped on a large female rattler about 4 feet long with 13 rattles. The crew killed it, together with 2 young ones. Several other rattlesnakes had been killed in the same neighborhood during the summer.

This year's experience unquestionably points to the advisability of early spring working of such areas.

T. J. King, N. H.

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FIRE NEARLY DESTROYS AGENT'S RECORDS

I recently had quite a scare. All my blister rust records came very nearly being totally destroyed. An early fire, with a estimated damage of \$200,000, raged for a number of hours in an adjoining building. I got to my office during the early period of the fire and with the help of others removed the most valuable of my records. Among them were some valuable field maps. Fortunately, a fire wall between the two buildings and the protection given our building by water, kept the fire out of it. But for this I am afraid it would have been impossible to save my records.

My experience would have been similar to that of a former blister rust agent in the same town and district when all his records were lost in a fire.

G. F. Richardson, N. H.

WESTERN BLISTER RUST AGENT REPORTS ON CONDITIONS IN THE EAST

Mr. W. G. Guernsey of the Division of Blister Rust Control recently reported on his impression of the blister rust situation secured on a trip through New England last fall. He writes:

"From Exeter, (New Hampshire), numerous short trips were made to inspect areas on which wild Ribes had been pulled in the early stages of rust control. Inspection revealed that there was practically no blister rust where Ribes had been pulled and the areas reworked at a five or six-year interval. That is, the young pines of eight and ten years of age had come in and were generally free of rust. However, other plots on areas visited, to which no protection was given, showed that at least sixty or seventy per cent of the trees were infected, with no hope of recovery. The rust seemed to attack the dominant and codominant trees in the stand, leaving the suppressed trees to take their place. A certain percentage of rust was also present on areas of young pine on which no reeradication had been carried on.

"The Yale school forest is situated near Keene (New Hampshire). White pine of all age classes predominates on the forest. These pine areas have been protected by pulling the Ribes and practically no rust is visible in the stand."

Extract from the Western Blister Rust News Letter, November, 1931, p. 110-113.

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WHITE PINE CLASSIFICATION IN ST. LAWRENCE COUNTY, NEW YORK

Twelve towns were completed during 1931 in St. Lawrence County using the white pine classification method. Over 1,000 pine areas were inspected. All of this number of areas had white pine on them, although the majority of this consisted of scattered pasture pine or a very small percentage of pine in mixture with other species. There were, however, 212 worthwhile pine areas protected from blister rust. Six assistants worked under the agent's direction. A town type map was given to each man with field instructions as to classifying. Any questionable classification was referred to the agent for final decision. Fifty-six plantations were included in this eradication work. The Ribes on 6 large areas planted to white pine by St. Lawrence County under the State Hewitt Reforesting Program were eradicated. 4-H Club plantings protected this year number 12.

Both the larger county plantings and the 4-H Club plantings have been properly fenced against possible grazing damage and with the efficient eradication work which our checking on these areas showed it seems that these white pines have received a very good start in becoming a productive timber crop.

Walter F. Pratt, N. Y.

AMERICAN FORESTERS HOLD INTERESTING MEETING IN NEW YORK

The New York Section of the Society of American Foresters held its annual meeting in the State Office Building, Albany, Friday, January 29. About 75 members were present.

The program, which had been prepared at considerable forethought, was very interesting. As soon as the usual business procedure was over, some time was given to various resolutions regarding forestry legislation, also to statistics and standards, and technical practices. The papers that were read were followed by a prepared comment of about 10 minutes, then followed in turn a by 10 minute open discussion. This scheme proved very satisfactory and kept the program nearly in schedule. The papers appearing on the program, and comments, are as follows:

AERIAL FOREST MAPPING, by Stuart Moir.

This paper was presented by Paul T. Winslow in the absence of Mr. Moir. Comments also were made by Mr. Winslow.

FOREST COVER IN RELATION TO UPLAND GAME MANAGEMENT, by Gardiner Bump.
Comments by W. E. Sandersen.

NEW USES OF WOOD AND THEIR INFLUENCE UPON FORESTRY PRACTICE, by Reginald T. Titus. Comments by Chas. W. Boyce.

NEW INSECT PEST OF INTEREST TO THE FORESTER, by A. H. MacAndrews.
Comments by H. L. McInture.

THE PROBLEM OF MARKETING FOREST PRODUCTS IN OTSEGO COUNTY, by R. H. Rogers. Comments by Paul Gillett.

REVIEW AND SUMMARY OF CURRENT FORESTRY LITERATURE by A. B. Recknagel.
This was an informal presentation by Mr. Recknagel and was thoroughly enjoyed by all, immediately after the dinner at Jacks.

At the evening "get-together" Mr. Bowman, Secretary of the Timber Conservation Board, gave a very interesting talk relative to his duties and mentioned many interesting sidelights on forestry. Dean Hugh P. Baker, Ralph Hosmer, W. G. Howard, and other interesting speakers were also heard. Arthur S. Hopkins, Chairman of the New York Society presided. Former blister rust men, including several of the District Foresters, were present.

This meeting, typical of all forestry meetings, included a worthy mention of white pine.

H. G. Strait, N. Y.

EDITORIAL FRENCH

For the benefit of control workers conducting black currant campaigns among French-speaking people, editorial advice on the best French phraseology for use by interviewers should not be considered too seriously. An editorial comment added to G. A. Root's article, "More About the Black Currant Project", in the January, 1932, issue of the Blister Rust News (Eastern) suggests an ungrammatical substitute for a correct French sentence by the author. We hope that such unfortunate comments will not deter Westerners from contributing to the Eastern "News" more frequently.

A. E. Fivaz.

* * * *

I have read with interest Root's article entitled "More About the Black Currant Project" in the January issue of the Blister Rust News. I hasten to offer a further revision to the linguistic approach of the inspector trying to make the French farmer understand the need of parting with his beloved cassis, source of "petit vin de cassis".

The last sentence would be expressed as follows:

- (a) Business like - Voulez vous bien me dire s'il y en a dans votre jardin.
- (b) Deferential - Voudriez vous bien me direetc.
- (c) The soul of chivalry - Auriez vous la bonté de me dire.

etc.

It is suggested that the tyro start at (a) and progress cautiously through (b) to the difficult (c) which, needless to say, will move the most obdurate citizen to ready compliance.

René P. d'Urbal, Western Office.

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PITCH PINE (PINUS RIGIDA) SIXTY FEET HIGH

State Leader Newman was with the writer recently in the Town of Loudon, New Hampshire, assisting in making a pine and control area map of the town. We got into a fine pine area in which some pitch pine, P. rigida, was distributed. The soil was light plains type. P. rigida in this section grows not more than 25 feet in height. The height of these trees, however, were striking. A number of them were easily 60 feet high, growing straight and limbless except for about 20 feet of the top in grand imitation of their better and more desirable neighbors, the white pine. Neither of us had ever seen their equal.

T. J. King, N. H.

FRENCH AS SHE IS SPOKE

Mr. G. A. Root, in a recent note in the Blister Rust News, Vol. 16, p. 11, January, 1932, entitled "More About the Black Currant Project", tells us how one of the inspectors tried to approach settlers in a French and Swiss community with a carefully prepared French speech. That is an excellent expedient which might profitably be extended to other language groups. But it is an old experience that the more refined the technique the greater must be the care with which it is applied.

Among all the things that tickle a man's funny bone there are few that make him smile, grin, laugh and guffaw more readily than the poor outsider's attempts at speaking a language he does not master. The outlandish accent not less than the actual errors of grammar and syntax and mistakes in the choice of words are undeniably funny, and that reaction is not conducive to a serious consideration of the blister rust agent's business. I take it for granted that our inspector's accent and pronunciation are impeccable. His French is not, and that of the Editor in his attempt at improvement is worse.

I would address a Frenchman as follows: "Je suis un inspecteur du Département de l'Agriculture (not d'Agriculture) des Etats Unis, et je suis chargé d'arracher et de détruire, conformément à la loi, tous les buissons de cassis dans le but d'enrayer une maladie sérieuse qui les attaque. Voulez-vous bien me dire si vous en avez dans votre jardin (or, more broadly: sur votre propriété)". "Sur votre jardin" means "on, over, on top of, your garden".

Why not have a short letter of this kind prepared, either to be sent ahead of the inspector's visit or to be delivered by him in person when he finds that either his English or his French does not get him anywhere.

E. P. Meinecke, Calif.

P U B L I C A T I O N S

Blister Rust

Ericksson, Jakob. Fungous Diseases of Plants, Second Edition. Translated from the German by Wm. Goodwin, 1930. 7 pages on the Currant Felt Rust, pp. 220-227.

White Pine

Brown, H. P. Growth Studies in Forest Trees; 2. Pinus strobus L. Botanical Gazette, Vol. 59, 1915, p. 197-241. This is a good paper on the formation of wood. It does not treat of the growth of the needles, a subject of particular interest to us in blister rust control.

WHY BUSHES ARE MISSED

While working experimentally in second eradication plots in Wisconsin, the writer desired to find out why he and other workers in the same plots had been missing *Ribes* bushes that logically should have been found sooner because the plots were worked every year for 7 years. Data were taken on 31 *Ribes missouriense* and 14 *R. americanum* bushes with respect to age, shade density, total inches of live stem, average annual growth, total new growth, and the amount of prostrate live stem. The bushes ranged from 2 to 10 years old, most of them from 3 to 6 years. The shade density ranged from .1 to .5, mostly from .2 to .4. The prostrate stem ranged from zero in 13 cases to 21 inches. The average live stem per bush was 21.16 inches, the average new growth per bush was 12.54 inches, and the average amount of prostrate stem per bush was 3.38 inches. Assuming that the amount of prostrate stem was as great in the year previous as it was in the year when the *Ribes* bushes were observed, it was found that an average of only 5.29 inches of upright stem was present when the bushes were missed the year before. There is no justice in checking an eradication area after a season's growth of *Ribes*. Rather the eradication should be checked immediately after the work is completed.

H. J. Ninman, Wis.

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MICE AND SQUIRRELS FEEDING ON BLISTER RUST CANKERS

The gnawing of blister rust cankers has been blamed on the red, gray and flying squirrels. Yet there had been no actual observation of these rodents in the act of gnawing the cankers. About 2 years ago, in the town of Madison, Maine, I noted a field mouse gnawing the canker on a five or six year old pine. The canker was on the stem and so located that the mouse was able to reach it easily. Since this time I have noted mouse tunnels in the snow leading to gnawed cankers on young pines. These observations show that this rodent will gnaw blister rust cankers. The field mouse was the first "animal" that I had actually observed at work on the cankers.

On December 15, 1931, I was with Mr. Getchell of Belgrade, Maine, in his pine lot. This lot is heavily infected with blister rust. During our wanderings through the pines many gnawed cankers were noted. I mentioned the fact that possibly squirrels were doing the gnawing. His reply was a surprise. He said, "Yes, red squirrels. I have watched them gnawing. I have wondered why they gnawed some pines and not others. Your explanation about the cankers clears up this mystery." It seems that the feeding took place during the day when the sun was warmest. Possibly the heat caused the pycnial stage to give off a odor that attracted the red squirrel. This observation shows that the red squirrels do gnaw blister rust cankers.

In this region of Maine very few nuts, acorns or berries were to be found. The apples were picked up early by bears. It has brought about a scarcity of natural food in the forests, and it is possible that this condition has brought about the extensive gnawing of blister rust cankers and buds, which under normal food conditions would not have taken place on so large a scale.

Jan. 28, 1932.

John M. White, Maine.

SQUIRRELS FEEDING ON BLISTER RUST CANKERS CONT'D.

In Mr. Perry's item in the January issue of the "News" on "Rodents Feeding on Cankers", he states that "I have never observed such intensive feeding on cankers as I did in December 1931". I might say that my observations bear out this statement in District #6, Warren County, New York. Like Mr. Perry, I have never seen the "critter" at work. I am quite sure, however, that the damage (if it is damage) is caused principally by red squirrels. I have observed that this damage to cankers is more intensive during winters when there is little feed for red squirrels. This was the case last fall and winter. We have not had sufficient snow here to date to cover the lower cankers for any length of time. As there is not much frost in the bark the "critters" are not prevented from having their diet of cankers, either high or low.

Feb. 1, 1932.

E. G. Woodward, N. Y.

* * * *

According to old residents here in the North this has been one of the mildest winters so far that we have ever had. The Olympic games at Lake Placid have been up against it for snow to practice. At last they had snow enough to start the games on February 4.

My observations are that the red squirrels have been very busy working at B. R. Control this winter, on the cankers. I have never seen so much of this work before in any season, and think this may be caused by the scarcity of nuts the past season.

I note an article in the Jan. B. R. News in regard to this same work. I have no doubt as to this work being done here by the red squirrels as I have seen them at work a good many times. I would not be surprised if gray squirrels might do this same work but have not had occasion to see them at work.

Our assistant, Mr. Chas. Cleland, has informed me that he saw a cottontail rabbit working on a blister rust canker. This was a small white pine with a trunk canker near the ground. In this case where these "birds" are plentiful, as in some sections of this country, we may be mistaken as to the squirrels doing all of this work, especially where the work is near the ground. There is a certain amount of this work beneficial in reducing the spread of the spores from the pine but I have yet to find a case where they have stopped the canker entirely. However, I have seen some cases where, it looked like, if they had worked a little farther this might have happened.

B. H. Nichols, New York.

CURRENTS, NOT RASPBERRIES, SPREAD THE BLISTER RUST

The following letter from a correspondent in one of the New England States shows that even with all the publicity given to the blister rust and its host plants some of the pine owners have failed to grasp the fact that only currants and gooseberries spread the rust to the pines. Mr. W. O. Frost, who sent in the letter, states that control work has been going on continually in the correspondent's town for 9 years.

To Forestry Department:

_____, Maine.
February 2, 1932.

Some time ago I wrote to the above Department asking about pine rust. I am thinking about planting raspberries but have a pine lot near by. The pine blister has bothered me near where there are some raspberries growing and not knowing whether this plant carries this disease with the currant bush I would appreciate an early reply.

Yours truly,

W. M.

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PENNSYLVANIA NOTES

Blister Rust Demonstration at Harrisburg, Pa.

The State Farm Products Show was held at Harrisburg from January 18th to 22d with an estimated attendance of about 300,000. One section of the exhibit of the Department of Forests and Waters was devoted to a blister rust control display. This booth showed a white pine stand free from blister rust in contrast with a stand of infected pines. The 2 stands were separated by a road and open field. The spread of the rust from infected pines to gooseberries and then to white pine was shown by the motion of red light spots across the background.

Conference

On February 2d and 3d, a conference was held in Harrisburg which was attended by the Foresters and Assistant Foresters of the Department of Forests and Waters. A paper entitled "The Eradication of White Pine Blister Rust in our State Forests" was presented by State Agent R. M. May. Attendance was 63.

R. P. Fatzinger, Pa.

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Dr. J. F. Martin gave a talk on "White Pine Blister Rust" at the annual conference of the Extension Service, University of Maryland, which was held at College Park, Maryland, January 19-22, 1932. Dr. Martin's talk was illustrated with specimens, maps, and life sized paintings.

BLUE RIBBON TREES AND HEALTHY PINE APPEAL TO FARM BUREAU MEMBERS

The annual Rockingham County Farm Bureau meeting, at which the Blister Rust Agent was invited to give a report, was an opportunity for presenting "Healthy Pine" to the gathering through a report and educational display.

The Lakeville conference keynote of "Blue Ribbon Trees" and "Healthy Pine" was adopted in presenting the report and display. On previous years infected specimens and the usual posters of warning and protective measures, were used. This year, however, thrifty, rapidly growing trees, which had been dug and neatly planted in small green tubs, were arranged about the front of the hall. Several white spruce trees thirty inches in height were used with pines which reached nearly to the shoulder, and each tree bore the printed card "Planted in 1928". Before and after the meeting, at which 125 members were present, many examined the trees and made surprised comment regarding growth and thrifty appearance. It was a fortunate occurrence that close by the hall was some exceptionally good white pine reproduction. The members were asked to note this natural growth which was the equal of or better than that displayed in the hall. At the noon recess, in spite of rain groups of men went out and looked over the nearby pine reproduction. Many interesting comments and discussions were heard.

Early the next morning a request came in for advice on starting a plantation and several more have been received since then.

L. C. Swain, N. H.

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SOME WINTER

One of the greatest advantages of this grand open winter (so far) is that we haven't had to wade or drive through 3 feet of snow, but believe me, here in western and southern New York we have had plenty of good mud. During the past week up until February 1 at least, people were often seen in this section of the State playing golf (in the broad, open spaces) and plowing. How is that for winter time in this neck of the woods?

For the past month I have been working on inspection of white pine plantations in connection with State Parks, institutions, city and town reservoirs and large individual holdings in the counties of Cattaraugus, Allegany, Steuben, Chemung, Tompkins, Schuyler, Wyoming and Livingston. I have several thousand acres of eradication work lined up for next season in this section of the State. The Ribes population does not appear to be heavy but the plants are generally distributed. The areas are open for the most part and therefore the cost of eradication should not be high. Millions of white pine are being planted next spring in the different districts on State Hewitt areas. So in spite of "Old Man Depression" it looks like we had a grand start towards a banner year in 1932.

N. H. Harpp, N. Y.

PUBLICATIONS ON BLISTER RUST CONTROL
AVAILABLE IN WASHINGTON, D. C.
February 1, 1932.

Dept. of Agric. Bul. 1186	- White Pine Blister Rust in Western Europe, by W. Stuart Moir. 1924. B.R.C. & F.P.	510
Farmers' Bul. 1398 Rev.	- Currants and Gooseberries - Their Culture and Relation to White Pine Blister Rust. 1929. B.R.C. (Revised)	12,100
Misc. Pub. 22, and Revision	- Protect White Pine from Blister Rust, by J. F. Martin. 1928. F. P. & B.R.C.	2,041
Misc. Pub. 23	- Protect Western White Pine and Sugar Pine from Blister Rust, by J. F. Martin. 1928. F.P. & B.R.C.	366
Misc. Pub. 27, and Revision	- Black Currant Spreads White Pine Blister Rust, by Samuel B. Detwiler. 1928. F.P. & B.R.C.	4,400
Tech. Bul. 87	- White Pine Blister Rust: A Comparison of European with North American Conditions, by Perley Spaulding. 1929. F.P. & B.R.C.	570
Tech. Bul. 240	- The Chemical Eradication of Ribes, by H. R. Offord. 1931.	603
Tech. Bul. 261	- Longevity and Germination of Seeds of Ribes, Particularly <u>R. rotundifolium</u> under Laboratory and Natural Conditions, by A. E. Fivaz. 1931.	950
Yearbook Separate 1181	- Blister Rust Control is Aided by Power Devices for Spraying Host Plants, 1931.	2,900 *
Yearbook Separate 1182	- Blister Rust Control is Effective with Public's Cooperation, by E. C. Filler, 1931.	3,800 **

* Ten copies of this publication are being sent to each Eastern Agent.

** Fifty copies of this publication are being sent to each Eastern Agent.

4- Page Leaflet

- Protect White Pine from Blister
Rust. 1929.

53,000

Jour. Agr. Research Reprints

- 1924 Posey, G. B. and
E. R. Ford. - Survey of Blister Rust Infection
on Pines at Kittery Point, Maine,
and the Effect of Ribes Eradica-
tion in Controlling the Disease.
In Vol. 28, No. 12. B.R.C. 200
- 1927 York, H. H., W. H.
Snell and A. R.
Gravatt. - The Results of Inoculating Pinus
strobus with the Sporidia Cro-
nartium ribicola. In Vol. 34, No.
6. F.P. & B.R.C. 1,060

R. G. Pierce

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NOTE TO AGENTS

Mr. M. S. Eisenhower, Director of Information, has requested that the News Letters of the Department refrain from using any material that does not conform to the certification that "The material contained herein is necessary for the proper transaction of the public business." It will be necessary therefore to forego such purely personal items as vacation trips, notes of officials participating in sports, notices of birth, and so on. Poems are included in the above tabooed articles.

Since also the News Letters are restricted to 24 pages, including the cover page, it may be found necessary to boil down some of the longer articles sent in for use in the News Letter. Mr. Eisenhower states that "A large decrease in the 1933 appropriation for printing will undoubtedly place a greater burden upon the A. D. & M. Section, which is already receiving more material for duplication than it can handle."

R.G.P.

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BLISTER RUST COOPERATORS ASSIST IN RELIEVING WINTER
UNEMPLOYMENT IN NEW HAMPSHIRE

Two of my cooperators from out of State who spend their summers in the White Mountains, are doing their bit toward relieving the unemployment situation in this locality by having some improvement cutting done in their woodlots. A local man has been requested to hire the men for the task and give whatever supervision is necessary. There are already 4 men at work on one lot under the direction of a competent foreman. Work will begin on the other property shortly. The currants and gooseberries on this property will be destroyed next year preparatory to setting out white pine.

T. L. Kane N. H.

O F F I C E C O M M E N T

GROUP INSURANCE FOR DEPARTMENT OF AGRICULTURE EMPLOYEES

In the July, 1931, Blister Rust News we brought to the attention of the agents a group insurance sponsored by the U. S. Department of Agriculture Beneficial and Relief Association. We have recently received a notice from this Association granting another opportunity to obtain insurance. This notice is given below:

Important Notice

The Board of Directors offers members another opportunity to obtain the second unit of insurance. During the period from January 15 to March 31, 1932, I am authorized to accept applications for the second unit from any member actively employed regardless of age. If you are interested send for an application blank. No membership fee is charged. The cost is \$1 per month. Special attention is called to the fact, however, that the second unit is granted only if the member is accepted as an insurable risk by the life insurance company, and that the amount of the second certificate is governed by the member's age on the effective date thereof.

J. M. Kemper, Secretary-Treasurer

U. S. Department of Agriculture
Beneficial and Relief Association.

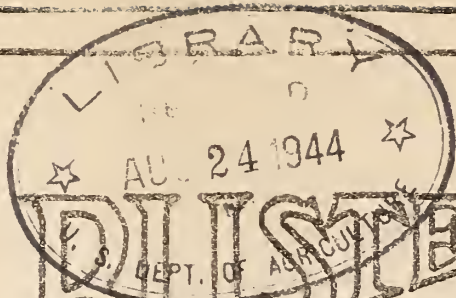
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USE OF PERSONALLY-OWNED AUTOMOBILE

The law which permits reimbursement to an employee for the use of his personally-owned automobile on a mileage basis allows reimbursement only when the employee is engaged in necessary travel on official business away from his designated post of duty. The Comptroller has repeatedly held that travel from home or headquarters for a distance of 4 or 5 miles or less is substantially duty at headquarters and does not place the employee in a travel status. Also employees are not allowed reimbursement for their personally-owned automobiles for transportation within the limits of their headquarters. Therefore, employees operating personally-owned automobiles on a mileage basis should make sure that vouchers submitted claiming reimbursement for this type of travel clearly show that it is in accordance with the above requirements.

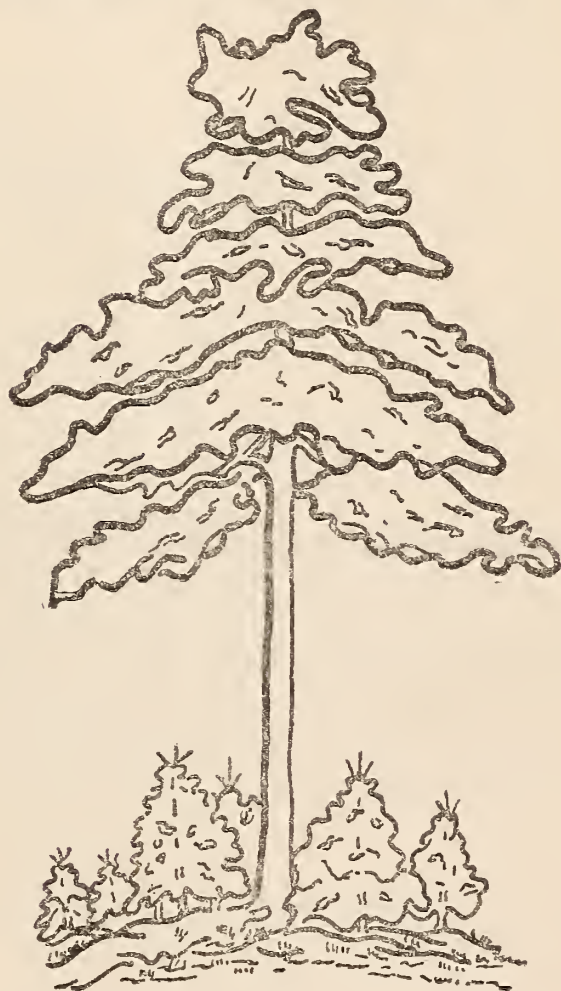
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THE BLISTER RUST NEWS



March, 1932.

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Number 3

U.S. DEPARTMENT of AGRICULTURE
BUREAU of PLANT INDUSTRY
DIVISION of BLISTER RUST CONTROL



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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and Cooperating States

Vol. 16, No. 3.

March, 1932

REQUESTS FOR BLISTER RUST CONTROL AREA PERMITS FOR RIBES
SHOW STEADY DECLINE IN MASSACHUSETTS

Since the placement of the Federal blister rust quarantine (Plant Quarantine #63) on October 1, 1926, the number of requests for permits to ship Ribes into Massachusetts has shown a rather steady decline. This fact is demonstrated by the following tabulation of the official blister rust control area permits issued under the provisions of this quarantine during the calendar years 1927-31, inclusive.

<u>Year</u>	<u>Number of Permits Issued</u>	<u>Number of Ribes Involved</u>
1927	248	3,479
1928	220	4,345
1929	153	2,582
1930	112	3,414
1931	90	1,700

An analysis of the requests for permits received during the calendar year 1931 shows that 72% of the stock originated from the important commercial nurseries in New York. A complete tabulation relative to the sources of the stock in 1931 follows:

<u>State of Origin of Stock</u>	<u>Number of Permits Issued</u>
New York	65
Iowa	9
Connecticut	8
Ohio	5
Vermont	3
Total	90

March 1, 1932.

C. C. Perry, Mass.

BLISTER RUST AND UNEMPLOYMENT IN NEW HAMPSHIRE

The "Union" of Manchester, New Hampshire, for March 4, 1932, plays up the part of the blister rust control organization in providing work during 1931. The heading of the article, which is about a column in length and includes a cut of one of the eradication crews at work, reads as follows: "275 Given Employment in State Blister Rust Program Covering 158,000 Pine Acres. 3,000,000 Currant Bushes Eliminated Through Funds State and 95 Towns Raised." Part of the article is quoted below:

"As the result of a statewide program in the control of the white pine blister rust, 275 men obtained employment during the spring, summer and up into the early fall of 1931.

"Of this number, 256 were residents of New Hampshire towns and cities, while the balance of 19, had, for the most part, formerly lived in the State, and were men of several years experience.

"It was through appropriations from 95 towns and cities, totalling \$25,850 (which the State increased 25 per cent), that the employment of so many men was made possible.

Individuals Help

"Interest on the part of some 26 individuals, firms and organizations, who paid \$2,325.93 for control work on their own properties, also contributed towards employing this large force.

"The Federal Government, through the agency of the White Mountain National Forest, hired State crews in the eradication of currant and gooseberry bushes on white pine areas in the town of Thornton, which lay within the boundaries of the forest reserve. In addition to State aid given towns and individuals, the Forestry Department carried on control measures over 3 State forests, two being in Campton and the third in Piermont.

"From these combined activities, a total area of 158,000 acres was covered, and nearly 3,000,000 currant and gooseberry bushes were located and destroyed. While the cost of these projects varied according to conditions, such as the abundance of the bushes destroyed, or the character of the ground examined, nevertheless, it compared favorably with former years, being but an average of 29 cents per acre. *****.

"Much has recently been said regarding the low stumpage prices of of native white pine. Some weeks back, at a meeting of the lumbermen's association in Manchester, a representative of the West Coast Lumber Bureau admitted that "Pacific coast stumpage" (the finest timber on earth), was worth but \$1.68 to \$2.00 per thousand.

"And yet, here in New Hampshire, there is a pessimistic feeling over the fact that low grade, knotty, pasture white pine brings, at present, but \$3 to \$5 per M. White pine stumpage prices have not declined any more in proportion than most other commodities, State Leaders say."

67 Per Cent.

"According to the reports of lumbermen and operators, submitted to the State Forestry Department, white pine constitutes 67 per cent of the entire lumber cut of this State. A large percentage of the wood-using industries manufacture products from white pine lumber. It is obvious that the logging, transportation and manufacture of pine must be instrumental in furnishing employment to thousands of persons.

"In a recent letter, sent out by the State Forester to boards of selectmen, the statement was made that 'in spite of depressed business conditions and desirability of exercising economy in public expenditures, the program of blister rust control should be continued'.

"White pine still remains the most valuable eastern forest tree. Aside from the fact it constitutes a large part of the lumber cut, its value from a scenic standpoint is great indeed.

"There is no excuse for letting up on protective work which needs to be done. Reasonable public expenditures to protect and build up future forest resources in towns during a time of depression, when men are in need of work, is sound economics, the State Forester says."

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SUMMARY OF BLACK CURRANT LOCATION WORK ON CAPE COD, MASSACHUSETTS

The black currant location work on Cape Cod, Massachusetts, has progressed as rapidly as road conditions have permitted. With the mild weather that has prevailed this winter the back roads in this region have been treacherous and more than once towing has been necessary. To the end of February we have completed our canvass in the four towns of Bourne, Falmouth, Mashpee, and Sandwich. As has been previously indicated in the "News" the black currant population in this section is very small indeed. As a matter of fact we have been making a note of the degree to which other Ribes are under cultivation and can report that such berry-bearing bushes are not generally grown in this part of the State. In Falmouth an exception to this condition was found in one part of the town where many large patches of Ribes, especially gooseberries, have recently been set out. In reporting this condition to State Leader Perry, I find that the official records show that in the 3 year period (1928-30) permits were issued for the planting of 406 currant bushes and 1,646 gooseberry bushes in the town of Falmouth. An interpretation of these facts is that evidently an energetic nursery stock salesman was abroad in the town. It does not appear that the soils are at all suited to the cultivation of Ribes, although some small fruits, notably strawberries are a leading crop. The records for 1931 indicate that the phenomenal sales of Ribes nursery stock is on the wane, because permits were requested for a mere 50 plants last year.

As regards the distribution of white pine, we have found quite a number of plantations and it is noticeable that on the summer estates in this region - "preeminently the summer playground of Massachusetts" - white pine is the popular conifer for ornamental plantings. In the group of towns in which we are reporting in this instance, natural white pine is most abundant in Mashpee. An appreciable number of old seed trees dot the landscape in many blocks in that town. With persistent efforts to keep out forest fires, white pine reproduction will surely restock large areas of land and replace the common pitch pine type.

One of the largest State forests in Massachusetts is located in these towns. The State forest comprises an area of 8,000 acres and many interesting experiments are in progress, especially to determine the adaptability of various tree species for growth in this part of the State.

The canvass in the 4 towns can be briefly summarized as follows:

	<u>Bourne</u>	<u>Falmouth</u>	<u>Mashpee</u>	<u>Sandwich</u>
Township area (acres)	26,584	29,260	16,617	27,915
No. places inspected for black currants	1,726	2,935	671	619
No. places where black currants were found	1	1	0	1
No. black currant plants found	2	6	0	3
No. other locations with culti- vated Ribes	33	75	16	24
No. other cultivated Ribes plants found	286	6,467	94	1,020
Estimated acres of white pine (all types)	175	575	450	580

March 1, 1932.

E. M. Brockway, Mass.

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USE "ALREADY ADDRESSED" ENVELOPES FOR WASHINGTON CORRESPONDENCE

It is not necessary to address envelopes containing official correspondence coming to the Washington Office to the particular individual concerned since all official mail is opened by one person and then distributed to the person concerned. Field employees who have considerable correspondence with the Washington Office can therefore save time and work by the use of printed envelopes which are already addressed to this office. Some of the field employees have been making use of this type envelope but it is believed that it should be used to a greater extent. If you desire a supply of these envelopes please let us have your order.

H. P. Avery.

RIBES NIGRUM APPEARS IN A WAR BOOK

The following extracts from the story "A Hilltop on the Marne" (Mildred Aldrich, 1915. Houghton Mifflin), serve to illustrate how prominent a part this plant takes in the daily life of the European. Written by an American, whose only object was to create for the reader the "atmosphere" of this section of France, it seems rather significant that the work should on two occasions bring Ribes nigrum into the foreground. Such references make it easier, perhaps, for us to understand the occasional bursts of spirited opposition which are encountered on black-currant elimination work, from those whose associations reach back to "the other side".

On page two there is a description of the view from the hilltop:

....."On clear days I can see the square tower of the cathedral at Meaux, and I have only to walk a short distance on the route nationale to get a profile view of it standing up above the town

"This is a rolling country of grain fields, orchards, masses of black-currant bushes, vegetable plots ... and asparagus beds; for the Department of the Seine et Marne is one of the most productive in France, and every inch under cultivation."

On page 69 the writer is describing the work of the women and children in the fields after the men of the community have left for the front: (Aug. 17, 1914)

....."It is harvest-time, you know, just as it was in the invasion of 1870.

"In a few weeks it will be time to gather the fruit. Even now it is time to pick the black currants, all of which go to England to make the jams and jellies without which no English breakfast table is complete.

"For days now the women and children have been climbing the hill at six in the morning, with big hats on their heads, deep baskets on their backs, low stools in their hands. There is a big field of black-currant bushes beside my garden to the south. All day, in the heat, they sit under the bushes, picking away. At sundown they carry their heavy baskets to the weighing-machine on the roadside at the foot of the hill, and stand in line to be weighed in and paid by the English buyers for Crosse and Blackwell, Beach, and such houses"

"That work is, however, the regular work for the women and children. Getting in the grain is not."

THEY SAY -

A NEW WORD A DAY KEEPS THE MENTAL COBWEBS AWAY.

In the February issue of the "News" (page 25) reference was made to the preparation of a program for the 1932 conference. In the preliminary reports received from the State subcommittees there were so many suggestions and conflicting ideas that it was deemed best to work up a tentative program and submit the same to the subcommittees for definite criticism. In other words, the idea was to have something concrete "to shoot at" as Mr. Mandenberg would say. With this idea in mind, a preliminary report was prepared. This report consisted of a copy of the suggestions received from each subcommittee and a tentative program proposal. This progress report made up a document of 14 pages of closely typewritten tissue.

This report was forwarded to the chairman of each subcommittee for comment and definite criticism. The first acknowledgment from a subcommittee was clothed in the following words:

"I have received your tome in regard to the 1932 blister rust control conference".

Our next step was to consult the Century dictionary with the following results:

"tome, n. a volume forming a part of a larger work; any volume, especially a ponderous one."

"A volume old and brown,
A huge tome bound
In brass and wild-boar's hide."

Longfellow, Golden Legend.

Add this to your mental equipment; it may at least help to solve a crossword puzzle some day without reference to an encyclopedia.

February 29, 1932.

C. C. Perry, Mass.

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ATTRACTIVE TEST TUBE SPECIMENS

Mr. G. Stanley Doore of Massachusetts recently sent in to the Washington Office several very attractive test tube specimens of white pine in the aecial stage. The test tubes were sealed with red sealing wax and the specimens were preserved in a greenish-blue colored liquid, the formula for which is given below:

Glycerin.....	1 oz. 34 minims
Blue Vitriol	14 drams 33 grs.
Sol. Formaldehyde.....	4 oz. 230 m.
Water.....	2 quarts

Mr. Doore stated he was of the opinion that after the aecial stage of the rust is put in the solution, all should be kept in the dark for a period of time to best hold the coloring in the specimens.

NEWS NOTES FROM RHODE ISLAND

Plans for the Coming Field Season

Foreman A. C. White of the Rhode Island Department of Agriculture started the season's field work in white pine blister rust control on Monday, March 7. According to present plans he will make a preliminary survey of local white-pine growing nurseries during March to determine blister rust control needs in establishing nursery sanitation. Only a few Rhode Island nurseries grow much white pine and that is raised for ornamental purposes only. Therefore, the problem of nursery sanitation, in so far as blister rust control is concerned, should not be difficult. Three or 4 crew men will be employed about the first of April to work under Mr. White's supervision in continuing the scouting for and the suppression of all Ribes in and around white pine plantations where blister rust was found last year. The cultivated black currant project will be continued on Saturday mornings and during inclement weather when woods work is impractical. Since only Providence, Central Falls and sections of Pawtucket and Cranston remain to be scouted for cultivated black currants, this work can be continued as a part time project. As soon as the mentioned early spring work is completed white pine areas scouted several years ago will be rechecked for wild and cultivated Ribes. We shall have to step this year to complete all work planned.

A Hope for Badly Weeviled White Pine Plantations

Since damage by the white pine weevil has lately discouraged some people in protecting and planting white pine, it seems important to mention the opinion of certain foresters, formed after making a cursory inspection of a badly weeviled white pine plantation at Goddard Memorial Park, Warwick, Rhode Island. On Monday, January 25, Messrs. Cook, Crowell and Cherry of the Massachusetts Department of Conservation visited Goddard Memorial Park with the State Leader of blister rust control to inspect the various tree plantings. An especially badly weeviled white pine plantation was examined to determine if enough valuable and straight final crop-trees could be brought through to obtain a normal yield. It was the unanimous opinion of the men present that a forester could go through and mark a sufficient number of trees to obtain a satisfactory wood crop. Since the opinion of the Committee on the White Pine Weevil, New England Section, Society of American Foresters, is that the ultimate control of the weevil will have to come through the application of correct silviculture to white pine, more field observations similar to the one reported may do much to encourage those persons concerned about white pine.

Standardization of Annual Cooperative Blister Rust Control Reports Thought Wise.

The State Leader recently found it necessary to check the Rhode Island annual cooperative blister rust control reports from 1917 to the present year. It was surprising to note the difficulty of obtaining desired

figures or information on important problems, for instance, the total amount of Federal and State money spent on certain projects. A standardized report following the same outline year after year would greatly facilitate the compilation of figures or facts on any one project. We profit from experience and therefore this suggestion may aid agents in States where the control work has been newly established. The changing of agents and the rearranging of work, of course, make such standardization difficult to accomplish, if sufficient plans are not made in advance in starting a co-operative program.

Learning the Lesson of Selective Cutting Too Late

An old time lumberman recently interviewed in Rhode Island informed the State Leader that if he had left sufficient white pine seed trees and young growth during his many years of white pine lumbering he would be "money in pocket" today. This man now owns hundreds of acres of inferior hardwood brush land where once valuable white pine grew. Because of the method of destructive cutting used it will be impossible to find forest growth large enough to cut for an indefinite period to come. This lumberman wishes now that he had aided nature and had planted white pine where necessary in years past. He is very willing to sell the brush land he now owns for between 2 and 3 dollars per acre.

White Pine - A Friendly, Homey Wood for Interior Use

Starting on page 8 of the March issue of the magazine entitled "The Small Home" there is an article under the heading "Pine - A Friendly, Homey Wood", written by Edna Knowles King. This article is accompanied by pictures showing beautiful white pine panels and other interiors. The author discusses the use of white pine in the old colonial homes of the Northeast and how architects are now returning to white pine as this friendly, homey wood is again valued for interior use. Blister rust control agents should read this article to increase their appreciation of white pine.

A. W. Hurford, Rhode Island.

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WISCONSIN DEVELOPS RIBES HERBARIUM

Approximately 250 specimens of Ribes plants, including some of each of the 9 wild Ribes species found in this State, were collected in Wisconsin during 1931. Some of these were gathered by H. J. Ninman during his Ribes survey work, and the remainder were collected by myself while doing general control work. These were mounted just recently by the University of Wisconsin in exchange for the duplicate specimens in the collection. The practical use of the herbarium will be to aid in determining more accurately the range of Ribes species in Wisconsin, and we expect to enlarge the collection during 1932.

T. F. Kouba, Wis.

Edit: It would be of interest to learn how many other States have such a herbarium.

EXTRACTS FROM 1931 ANNUAL REPORT FOR MASSACHUSETTS.

Aecial Appearance

The first open aecia in 1931 was observed by Agent Brockway on April 2 on pines in the village of North Easton (Bristol County). Agent Clave reported the rather unusual occurrence in Barre (Worcester County) of aecia protruding through the apparently dead bark on the lower limbs of larger trees, the branches of which appeared to be completely shaded out and dead.

Infection on Ribes

Heavy infection seemed to be general throughout the State, with perhaps the most intense outbreak occurring in the Worcester County district, where Agent Clave commented upon the finding of infection in many instances upon cultivated red currants. This is an unusual occurrence in that section. In one town (Hubbardston) skunk currants in some swamps were about 50% defoliated by the first of August, due to the intensity of infection. The disease was also reported on R. aureum and R. odoratum as intense, a condition not usually met with in Massachusetts. In the districts where black currants were being eliminated, such plants were very heavily diseased. In connection with this species, it appears that infection does not occur early in the season, but increases during the summer and by September the leaves are usually so heavily infected that they completely dry up. Infection on Ribes was not only general and intense, but it persisted very late in the season. Agent Brockway reported telial columns on the leaves of R. nigrum growing in a garden in the town of Bourne on the Cape Cod Canal on November 5. Agents Brockway and Hodgkins also reported both stages on the leaves of seedlings of R. americanum found in a control area in the town of East Bridgewater (Plymouth County) on November 17. With the intense infection prevailing on Ribes, it seems safe to assert that many pines must have become infected during 1931 in sections where Ribes are recurring.

New or Unusual Areas Located in 1931

New infection areas of considerable extent and severity were located by State Leader Perry and Agent Roop, in the plantations on the Sudbury Dam Reservation of the Metropolitan Water Supply Commission in the town of Southboro (Worcester County). The infection there is apparently of long standing, and the intensity of the damage would point to the presence of R. nigrum, but no specimens of this variety were found on the area by the 1931 control crew. The principal species found near the infected pines was R. americanum.

Agent Roop also located another very interesting and instructive infection area in the town of Ashby (Middlesex County). This particular area comprises a stand of mostly planted pine, known as the Lawrence Plantation. The pines are about 15 years old. The damage in this area apparently resulted from the presence on the lot of skunk currants which were uprooted in the spring of 1923. A slight regrowth of Ribes had taken place, and the land was re-covered during the spring of 1931. Casual observations indicate that the control work of 1923 was very

efficient and effective, efficient as regards the eradication of Ribes, and effective as a preventive of further damage. Very few Ribes were found in 1931, and only one canker originating later than 1923 has as yet been noted.

Reeradication

In the work in the Southeastern district, the result of the season's work emphasized the fact that reeradication is necessary to the permanent control of the disease. As might be expected from the results of ecological investigations, many seedlings as well as the usual number of bushes apparently missed in the original work were encountered during the reeradication work. Agent Brockway has followed the practice of making a special map entry to denote concentrations of Ribes and plans to revisit all such areas the first thing in the spring of 1932, for the purpose of eliminating any persisting bushes. He has followed this same practice in connection with the removal of flowering currants. It is a well known fact that one attempt is seldom successful in eradicating plants of this type of Ribes, because of their unusual sprouting ability. Sprouts invariably appear within the season following the removal of the parent plant. By revisiting these sites promptly, sprouting can possibly be checked.

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125 MAINE TOWNS ASKED TO AID FIGHT ON PINE BLISTER RUST.

Augusta, (Maine), March 2 (AP) - Forest Commissioner Neil L. Violette is sending out requests to approximately 125 towns in the 12 southern counties asking support of articles in their town warrants calling for cooperation with the State and Federal Governments in control of white pine blister rust.

Destruction of all currant and gooseberry plants within 900 feet of white pine stands prevents further spread of rust, he said. "If not removed, the rust increases rapidly, often showing infection running as high as 40 per cent within 3 or 4 years.

"White pine being our most valuable tree, a few cents an acre to protect it from blister rust is a good investment. One mature tree alone would more than pay for protecting an acre of pine. While pine has been a great asset in the past and we know in all probability it will be again if given proper protection from fire and disease", he concluded.

Blister rust agents have been busy giving information to pine owners in the 12 counties, expecting that blister rust control work will be carried on this year on the same if not a larger scale than in 1931.

(The above article, which appeared in the Portland Press Herald for March 2, appeared also in all the Maine daily papers.)

OBSERVATIONS AND STUDIES BY CONTROL AGENTS

The field of blister rust control research is a large one complicated by a wide variety of factors that influence pine, Ribes, the fungus itself, and their interrelationships. This multiplicity of factors makes it difficult for anyone without a very definite knowledge of local conditions to select satisfactory studies to be conducted by the control agent. The observant control agent can select them much more satisfactorily than anyone else, if he can but recognize a good possibility for a study when he comes face to face with it in the field. An important service to control research possible for the agent lies in the reporting of some local condition that is especially fitted for study by the research personnel of the organization. In keeping on the alert for such local conditions, the observant agent will locate also restricted problems suitable for study in the limited time available to him after the performance of his regular duties with which such studies must not interfere.

It is impractical to write directions for the location of suitable studies or study sites. The individual's power of observation and reasoning, and his experience combine to permit his recognition of study possibilities. All of us have experience enough in blister rust work to know what conditions of Ribes, pines, or disease we can normally expect under any certain set of conditions. However, some of us fail to observe the abnormal conditions that we run across in the field, and the rest of us who do observe them frequently fail to consider them worthy of much reasoning. Yet it is often just such apparent abnormalities properly studied that serve to improve our understanding of the problems with which we are confronted. We can and should learn to be more observant and more interrogative concerning our observations.

Below are listed a few typical problems in the form of questions, which invite us to become keener observers and searchers for the truth.

1. What is the comparative value of individual Ribes species in causing pine infection:
 - (a) As measured by intensity of pine infection;
 - (b) As measured by distance of spread to pine from Ribes.
(Could be studied on sites where only one species of Ribes is associated with white pine, also where a single bush or clump of bushes of one species is surrounded by otherwise Ribes-free white pine areas in a disease-infested region.)
2. At what age do Ribes of each species begin to bear fruit under optimum ordinary-field conditions.
3. What is the maximum forest shade (a) coniferous, (b) deciduous, under which Ribes of each species will bear fruit.

4. What sprouting will occur if roots of each species of Ribes are left in the ground, providing that the root crowns are thoroughly removed.
5. What is the rate of successful Ribes "come-back" following initial eradication under conditions of:
 - (a) Undisturbed forest growth in old field type;
 - (b) Undisturbed forest growth in old forest type;
 - (c) Fire or logging occurring immediately before initial eradication or subsequent to it.
 - (d) Continuous heavy grazing by sheep or cattle.
 - (e) Etc.
6. What species of Ribes produce seeds capable of germination following long periods of natural storage in the forest floor. (Invaluable assistance would be rendered if the location of areas of pine forest floor in which naturally-stored seeds of various Ribes species are suspected of being present is reported to the writer, who will gladly suggest simple field tests for their detection.
7. What species of birds and mammals feed on Ribes fruit. (Records by field men of actual observations would be helpful.)
8. How far from the fruit producing source will viable seeds of various species of Ribes be spread by any and all means.
9. What is the rate at different distances from seed sources of Ribes reestablishment in old fields once cultivated.
10. For each species other than R. rotundifolium, what is the percentage of defoliation at two-week intervals during the eradication season under shade and open conditions.
11. What influence has the disease on the defoliation and the vigor of various species of Ribes.
12. What percentage of the number of Ribes plants grouped by live stem classes will a standard crew locate and remove under normal conditions.
13. How can control methods be improved for different Ribes conditions.
14. How effective has been the control work on any given area in preventing the further spread of the disease.
15. How much actual damage to pine in dollars and cents has resulted from blister rust in local infection areas.

Undoubtedly, as the control agent goes about his field work he observed field conditions pertaining to white pine forestry (including blister rust control) that bring to mind questions of where, when, and why. Much can be gained if these questions are openly voiced and discussed. In order to provide at least a second party for these discussions, the writer invites correspondence on such subjects from every Agent. The correspondence that is of general interest or information will be furnished by the writer to the Editor of the "News" for publication each month.

A. E. Fivaz, Forester.

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WHITE PINE AND THE WINTER OLYMPIC GAMES

The third winter Olympic games, which were recently held at Lake Placid, New York, were witnessed and enjoyed by thousands of people from all parts of the world. Lake Placid is nationally known as a winter and summer resort situated in the heart of the Adirondacks, surrounded by some of the highest mountain peaks in the East and many beautiful lakes. Going around Mirror Lake one can see the Lake Placid Club buildings nestling among the spruces and pines a few rods from the shore. From the front of the main building fluttered the flag of every nation that had contestants entered in the events, with our stars and stripes unfurling from the topmost part of the highest building. It was a wonderful sight with the snow covering old mother earth, the different colors of the flags and buildings, all blended in with the dark green of the forest.

Without our pines and spruce, would it have been possible to have held this great sporting event at Lake Placid? I hardly think so. If blister rust control work had never been carried out in and around Lake Placid much of the natural beauty would have been marred and this would have detracted greatly from the scenic setting of the winter Olympic games. Many of the smaller pines would be dead, and it surely would have been a very displeasing sight, as one approached the village from the east, to have seen blister rust damage in the form of many dead trees and branches, discolored foliage, stunted growth and pitch covered cankers instead of the dark green stately pines which surround the main buildings of the Club and border many of the trails in the immediate vicinity.

The village of Lake Placid realized in time the value of the white pine as a great asset to their community; hence did not allow these trees to suffer from the blister rust and become an eyesore. Not only do white pine groves but single trees add to the beauty of the landscape. The aesthetic value of the white pine and its use for watershed purposes are nearly as important as its commercial value in many places within its natural range.

H. W. Holcomb, N. Y.

COURT UPHOLDS STATE IN CEDAR TREE DISPUTE

A recent decision of the Franklin County (Penna.) Court establishes for the first time the authority of the Commonwealth to compel land owners to clean up sources of danger in plant pest control work, states R. H. Bell, Director, Bureau of Plant Industry, Pennsylvania Department of Agriculture. The Pennsylvania Plant Pest Act of 1927 gives the Secretary of Agriculture authority to destroy plants and other agricultural products if in his opinion, such action is necessary to safeguard important agricultural interests.

The Franklin County case involved the removal of cedar trees on properties of 22 individuals as the only control for Cedar Apple Rust which was causing important loss in commercial apple orchards in the vicinity. Four of the property owners refusing to remove the cedar trees from their land, were prosecuted, adjudged guilty of a violation of the Act and fined by a justice of the peace. In the meantime, the trees were removed by the State. An appeal was carried to the county court based on the constitutionality of the Act, the plea being that a cedar tree was not a plant as defined in the Act and that citizens could not be deprived of property without due process of law. The court sustained the decision of the justice of the peace and upheld the Act on both points of the defendants' plea.

(Extract from "The National Nurseryman", February 15, 1932)

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AMERICAN WHITE PINE IN SWITZERLAND

Dr. Henri Badoux is the author of a monograph on the growth of our native eastern pine in Switzerland, a report recently issued by the Swiss Central Forest Research station. A translation made by Prof. George S. Perry of the Pennsylvania Forest Research Institute contains some of the author's conclusions.

Dr. Badoux finds that the white pine thrives very well over a large portion of the Swiss foothill forests. It is adapted to the climate and natural reproduction is readily secured. Where it is adapted to the soil it suffers no worse from the white pine blister rust than do other trees from the pests that attack them. The author finds that the tree thrives best when grown in mixture with other species.

The volume growth of white pine is extremely good, and up to an age of 70 to 80 years it surpasses all the native trees of Europe in rate of wood production. The boles of the trees are straight, and clean themselves readily of dead branches. This white pine lumber brings a higher price especially in the cabinet making industry, than does similar grades of spruce and fir.

(Extract from the "Service Letter" of the Pa. Dept. of Forests and Waters, March 3, 1932.)

Edit: The above article was mentioned on page 36 of the February, 1931, Blister Rust News.

WHITE PINE IN THE GALLITZIN DISTRICT, PENNA.

In the northern part of the Gallitzin Forest District there is included in the forest cover probably as high a percentage of white pine as there is in any section of the State. The area, which is comprised of northeastern Indiana County, northern Cambria County and southwestern Clearfield County, is literally dotted with stands of white pine. It is true that most of these stands are rarely larger than several acres and there are only a few large individual holdings. But it should be extremely gratifying to the Forester and to the landowner that such a large amount of white pine, a considerable percentage of which is mature, should still exist. Furthermore, these stands are serving as seed trees and many surrounding waste areas and abandoned fields are being filled in with natural white pine regeneration.

Probably the most interesting of the large holdings is the one owned by the Hegarty Brothers. This area is located at Hegarty's Corners about 4 miles northeast of Coalport, Clearfield County. The whole estate is comprised of approximately 400 acres of which over half is wooded or coming in with natural regeneration. Of the wooded area about 140 acres is white pine of over 20% establishment.

The story of the Hegarty's is rather interesting both from an historical and conservational viewpoint. John Hegarty first settled on the present site in 1820, cleared a part of the land for farming and did some lumbering always with a view, however, of perpetuating the stand. His son, Samuel Hegarty, followed the same principles of cutting only diseased, defective and down trees and utilizing them to the best advantage. The present generation consisting of Allison L. Hegarty, W. W. Hegarty and J. C. Hegarty hold the estate jointly and abide by the same principles as their predecessors. As a consequence there still remain on the area some original pine. It is true that they do not of themselves form even a 20% stand but as many as it was possible to save still remain. Only as soon as one is about to fall prey to some natural destructive influence is the axe used. Probably a much larger acreage of original pine would remain were it not for the severe storm of 1852 at which time a large portion of the white pine were windthrown. These were consequently utilized and the area is now stocked with an even-aged stand which is just approaching maturity and which covers an area of probably 35 acres.

Probably the largest original pine on the area measures about 13' in circumference and has attained a height of about 140'. The others range only slightly smaller in size, the greatest variance being in circumference. It is the writer's opinion that these can be numbered among the largest white pine in the State.

But probably the most encouraging feature is the amount of young white pine coming in. These are grouped in even-aged stands averaging about 20 years in age. If these stands are protected from insect attack, and they

are no longer very susceptible to weevil, and from fungous disease such as blister rust they will soon grow into merchantable size and help swell the already comparatively large acreage of natural white pine reclaiming old fields to their original use. Since, supplementing the Hegarty white pine are many more acres of mature and restocked pine immediately surrounding the estate.

Another area which is of interest due to the large amount of mature white pine is the Babcock tract in close proximity to the small town of Westover. This stand is now owned by Mrs. Musser of Allentown and was originally used as a Game Preserve. Nearly every draw of this sizable tract is stocked with white pine which is mature or rapidly approaching maturity, the total area amounting to about 100 acres or more.

Keeping in mind that the aforementioned areas are only a small percentage of the numerous stands, ranging from 2 to 100 acres and more, and ranging in size from seedlings to mature timber, which are sprinkled liberally over the northern townships of the Gallitzin Forest District, the question of what is to be done to conserve and utilize this heritage should take a prominent place in the Forester's and landowner's plans.

In the first place, no better policy of utilization could be carried out by the individual landowner than that practiced by the Hegarty brothers, namely cutting only fully mature and decadent trees and keeping the future of the stand thoroughly in mind. In the second place, the owner should be led to realize the value of protecting the stand from the influence of destructive diseases, and at the same time given aid in the application of protective and preventive measures. In developing a plan of protection, the Forester will, as always, be compelled to make the contacts and break through the lethargy which seems to be a general characteristic of the majority of forest land owners. If these contacts could be made, there can hardly be any doubt as to the values resulting from the increased forest-mindedness of the owner and the improved condition of his stand.

Paul H. Russell, Asst. Forester.

(Extract from the Service Letter of the Pa. Department of Forests and Waters, February 4, 1932.)

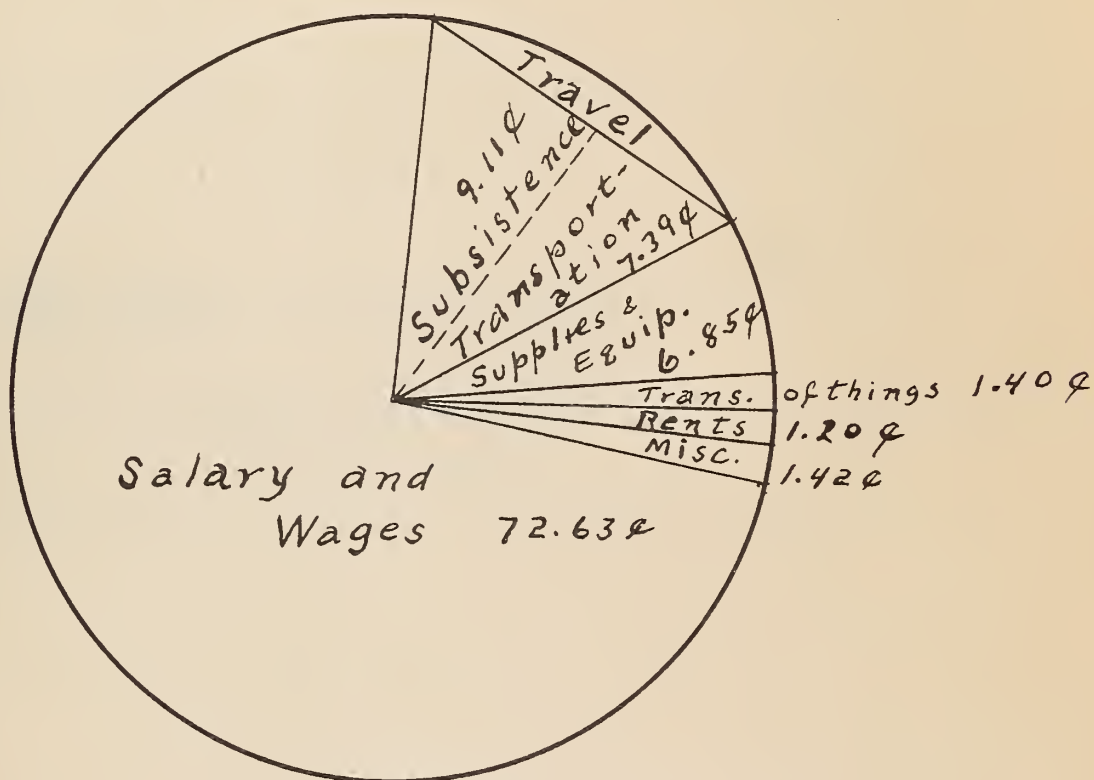
Edit: A preliminary survey for Ribes seems to be indicated for both the Hegarty white pines near Coalport and the Babcock tract near Westover.

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Mr. Chas. B. Kresge was appointed blister rust control agent in New York, effective March 1, to take the place of Mr. W. F. Pratt, who resigned the last of January to accept a position as District Forester with the New York Conservation Department. Mr. Kresge's headquarters will be at Gouverneur, New York.

THE BLISTER RUST DOLLAR

An analysis of the expense dollar by another bureau in a recent issue of the Administrative Bulletin interested the Washington Office and raised the question of what proportion of the blister rust dollar was used for the different objects of expenditure. It was found for the fiscal year 1931 the dollar was divided as follows:



The expenditure of 1.42 cents for miscellaneous items consists of .04 cents for care of animals and vehicles; .17 cents for multigraphing, mimeographing, etc.; .48 cents for communication service; .49 cents for repairs and .24 cents for other miscellaneous items.

Ruth Brittlebank, D. C.



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Mar 1932
Supp

SUPPLEMENT TO

THE BLISTER RUST NEWS

Vol. 16, No. 3, March, 1932.

C O N T E N T S

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<u>Pinus peuce</u> , the Macedonian White Pine, As a Substitute for <u>Pinus strobus</u>62

By Dr. Karl M. Müller,
Munich, Germany.



PINUS PEUCE, THE MACEDONIAN WHITE PINE, AS A
SUBSTITUTE FOR PINUS STROBUS.

(With 3 photographs)

By

Dr. Karl M. Müller,
Munich, Germany.

The white pine blister rust represents one of the most dangerous forest diseases in Central Europe just as in North America. The Eastern White Pine (Pinus strobus) introduced as a very promising and favoured species in our European forests, is infected by blister rust and is losing out in nearly all sections where grown. Professor von Tubeuf of Munich, who has for many years been engaged in investigating the blister rust in our country (Germany), found by comparing young and pure stands of P. strobus and P. peuce growing under equal conditions in the Forest Arboretum of Grafrath near Munich, that the young stand of P. strobus became infected while P. peuce showed no infection. The same result was obtained by artificial experiments.

Since P. peuce was one of the little-known European tree species in the dendrological literature and nothing had been published about its silvicultural properties; further, as it was impossible to secure seeds commercially for new experiments, the Bavarian State Forest administration engaged me as forest expert in 1926 to explore the native occurrences of this pine, to make a detailed report on all observations necessary concerning its cultivation, and finally to secure seeds of it. I was charged with this commission because I had already traveled very extensively in the Balkans and was, therefore, familiar with the native range of this pine tree. In the following I will give a short extract* from this report, as I think it will be of interest and use in the control of the blister rust in the United States:

1. Name and botanical characteristics:

Balkan White Pine, Macedonian Pine. Common name in its home range is White Mura. This tree belongs to the small family of the five-needled pines occurring in North America, Europe, and Asia (Himalaya). The Macedonian Pine is the only species of this family, which has proved immune to the blister rust as far as I know. Among the distinguishing characteristics of P. peuce and P. strobus are the following: the needles of P. peuce are stiffer than those of P. strobus; the branchlets of peuce are glabrous, while those of strobus are glabrous or slightly puberulous.

* Extract from "Untersuchungen über Pinus peuce und Pinus leucodermis in ihren Bulgarischen Wuchsgebieten." Contained in "Mitteilungen aus der Staatsforstverwaltung Bayerns" 19. Heft, München 1928.

2. Natural occurrence:

There are only a few limited natural occurrences of P. peuce, which is considered by Professor Adamovic as a tertiary relic like Omorica Spruce. The largest occurrence of P. peuce is in western Bulgaria. Smaller ones are found in Serbian Macedonia (Peristeri-Planina) and along the boundary of Albania and Montenegro. All together have to be regarded as primeval forests. The Bulgarian range extends between 41°40' and 42°15' north latitude. The best provenience is found in the Rila and Pirin Mountains.

3. Climate of natural range:

The Balkans belong for the greatest part to the Southern-continental climatic zone. Therefore, typically, the main rainfall occurs in winter and spring (November-April). During summer and fall there is very little rain and the weather is dry and hot. Climate, generally speaking, is therefore very similar to that in the Western United States. Annual average rainfall in the P. peuce type of the Rila Mountains is 30-40 inches. Snowfall is heavy and snow remains on northern slopes in high elevations until the middle of June. Winter climate is very rough. The Pirin Mountains are still more continental, rainfall is about 28-32 inches and early and late frosts are frequent.

4. Geology and soils:

Macedonian Pine is growing almost exclusively on silicate rocks (granite and gneiss), which seems to be a common characteristic of all five-needled species. But cultivated, the tree does not take it ill if raised in other mineral soil.

5. Elevation of P. peuce type:

The Macedonian Pine in its original range is a forest tree of high alpine character, about like Alpine Fir (*Abies lasiocarpa*) in the Western United States. The pure, even-aged P. peuce type ranges in the Rila Mountains between 5600 and 7300 feet elevation. In mixtures of single trees with other species (Scotch Pine, Austrian Black Pine, White Fir and Beech) it is found down to 4000 feet elevation. Nevertheless, transplanting it in lower levels does not interfere at all, and the cultivated stands in Grafrath (Bavaria) show excellent growth at 1600 feet elevation and 48°6' north latitude.

6. Exposure:

In the high elevations the pure P. peuce stands are growing exclusively on N. and NE. aspects. One finds best growth on steep, cool, and shady slopes. The reason for this is not so much the necessity of humidity as of protection against direct sunshine. Where individual trees on dry sites are hit by the sun, they become sun-scorched.



Figure 1

View through virgin timber
of Pinus peuce. Pirin
Mountains, Bulgaria.

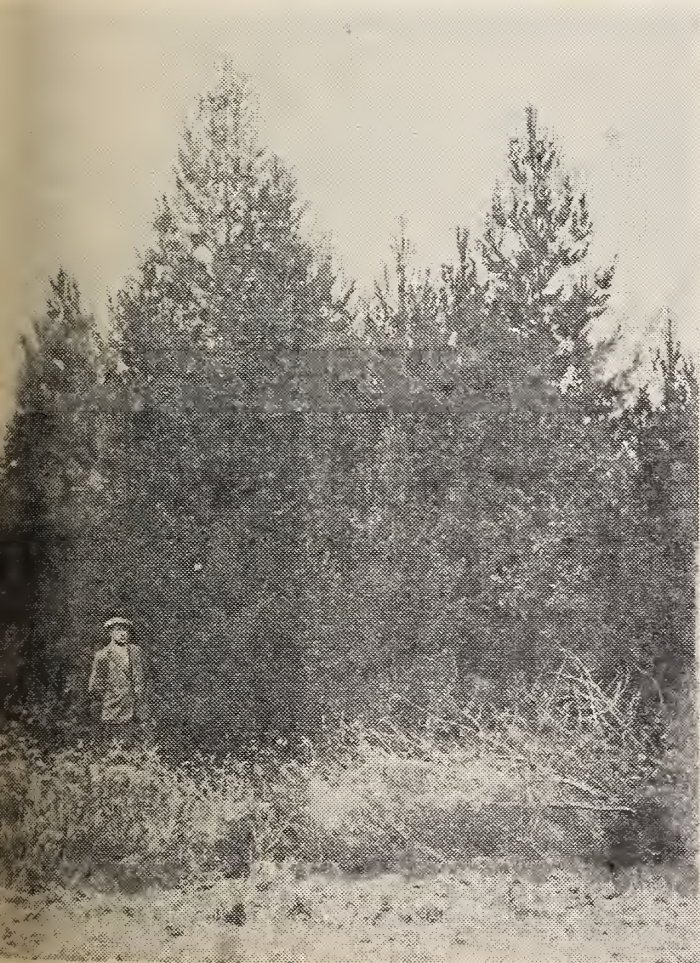


Figure 2 - Exterior View

Twenty-three year old stand of Macedonian pine, Pinus peuce, in
Arboretum of Grafrath, near Munich.

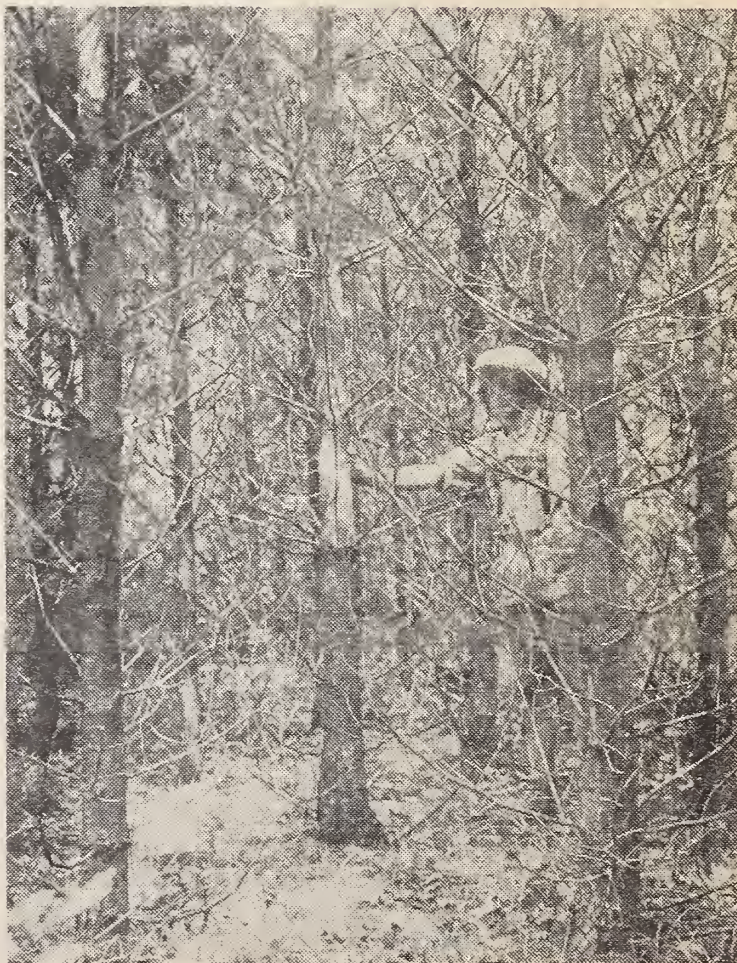


Figure 3 - Interior View

7. Forms of mixture:

The best timber is to be found where the Macedonian Pine is growing in pure stands. The dense, even-aged stands, coming up after forest fires, tall, straight, and clear, remind me of the best second growth and future stands of Western White Pine I saw in the American Northwest. There is much similarity, not to say identity. But besides, the Macedonian Pine grows with all other tolerant and even intolerant trees and also forms good stems in single mixture.

8. Root system:

Although not very deep-rooted, Macedonian Pine is sufficiently steadfast. The root system is similar to that of White Fir. Windfalls occur very seldom. The Macedonian Pine belongs to the storm-proof trees.

9. Snow resistance:

The P. peuce zone is characterized by long and niveous winters. Depth of snow ranges up to 10 feet. Snow damage does not occur even in full-stocked, dense and pure young stands because of the high elasticity of the wood. There is a remarkable difference between young Macedonian Pine and young P. strobus in favour of the former.

10. Shade endurance:

Macedonian Pine ranges about with P. strobus, being a rather tolerant tree which endures single mixture with Spruce, White Fir, and Beech. However, natural reproduction always comes up in the open, usually, like Western White Pine, on burned-over areas.

11. Height growth during youth:

The Macedonian Pine can be considered as a moderately fast growing tree in its native habitat. In the high elevations of Bulgaria the growth of young trees does not compare with that of P. strobus. For trees cultivated in lower levels, however, the growth in height lags very little, if at all, behind that of the Northern White Pine.

An examination of numerous sample trees of Macedonian Pine showed that their heights reached 40 inches in an average of 11.5 years, 60 inches in 14.0 years, and 80 inches in 16.3 years.

The periodic development of growth in height is given in the following table:

<u>Annual Increment in Height.</u>	<u>Range of Tree Age</u>
Up to 4 inches	Up to 10½ years
4 - 12 inches	11 to 24 years
12 - 20 inches	From 21 years up

The best growth in height found was 30 inches in 24th year. Leaders over 24 inches are not uncommon. The best heights reached were 440 inches (36.66 ft.) at an age of 32 years and 430 inches (35.83 ft.) at 29 years. These results were obtained in localities of 5,300 to 6,300 feet elevation. Later I will give the growth dimensions obtained from the cultivated trees in the Arboretum of Grafrath.

12. Insects and fungous diseases:

In its native country, according to information from foresters there, the Macedonian Pine is the coniferous tree least affected by insects and fungous diseases. There are noted only two wood-boring or bark beetles on P. peuce in Bulgaria, namely: Tomicus cinereus, attacking also Pinus leucodermis, P. halepensis, P. nigra, and P. pinaster; and a Buprestid. Fungi found on the Macedonian Pine are Trametes radiciperda and Agaricus melleus. The blister rust is also entirely unknown in the virgin stands. In its primeval forests the Macedonian Pine demonstrates an astonishing health, particularly in old stands. There are no conks or rotten boles. Logs from trees 200-250 years old are with very few exceptions sound.

13. Damage by grazing:

The stock commonly pastured in the high elevations of the Balkans are sheep and goats. On account of its strong turpentine taste the Macedonian Pine is despised by pasture stock.

14. Cone crop:

The Macedonian Pine starts bearing its first cone crop at the age of 17-20 years on shady and cool slopes. In hot, dry localities cone bearing starts at 12 years of age. Heavy cone crops occur every 3 to 4 years. A succession of two heavy cone crops is not infrequent. Young trees 30-35 years old are bearing as many as 60 or more big mature cones of a yellowish-brown color.

15. Dimensions and yield:

The Macedonian Pine in its home range is a first class timber tree. There, its height growth is not inferior to that of the common pine (P. sylvestris, Scotch Pine, occurring near the southern limit of the Macedonian Pine range) or even White Fir (Abies pectinata). With its 200-300 years maximum age, Macedonian Pine ranks with the oldest trees of virgin stands.

Generally the heights of the Macedonian Pine vary between 90 and 120 feet and the diameters breast high between 16 and 24 inches, at ages of 200 years and more and elevations up to 6,600 feet. Up to this elevation the Macedonian Pine runs in pure stands with no understory, the ideal of the even-aged primeval forests that result, in the case of many species, from forest fires over all the northern zone (see Figure 1). The yield itself is given in the following table compiled according to the European system:

YIELD TABLE FOR MACEDONIAN PINE

Sample plot No.	Mean sample tree			Density of stock-ing	Number of stems per hectar	Basal area per hectar qm*	Volume of mean sample tree fm**	Total volume of sam-ple pl-fm	Vol-ume per hectar fm	Correspond-ing volume in cu. ft. per acre.	Site Class
	Age (years)	Height DBH	Form-factor								
1	220	<u>103</u> 19.2	0.46	0.7	330	58.5	2.55	168	840	12,005	I
2	200	<u>113</u> 23.2	0.52	0.5	215	56.0	4.65	200	1000	14,291	I
3	230	<u>110</u> 20.8	0.41	0.7	350	72.0	2.90	203	1015	14,506	I
4	200	<u>90</u> 18.4	0.40	0.7	360	59.0	1.79	128	640	9,146	IV
5	250	<u>103</u> 16.0	0.45	0.8	500	65.0	1.75	175	875	12,505	III

Explanation:

Heights and DBH are given in feet and inches, respectively;

* qm - Quadratmeter;

** fm - Festmeter (Cubic meter);

Size of sample plots: 2000 qm - 1/5 hectar.

16. Properties and uses of wood:

The wood of the Macedonian Pine is a heart-wood. The colour of the fresh heart is light-reddish and presents itself only on long seasoned logs. The wood of P. peuce in spite of its great similarity to that of P. strobus is heavy compared to that of the other coniferous trees in its range. It is heavier than Spruce (Picea excelsa) and White Fir (Abies pectinata) and only a little lighter than Scotch Pine (P. sylvestris). Its durability is greater than that of White Fir and Spruce and nearly as great as that of Scotch Pine. Its resin content is large. Resinous wood occurs frequently in the butt log. The timber of Macedonian Pine plays an important part in the commercial trade of Bulgaria. It is preferred even to high class heartwood timber of the southern Scotch Pine and brings the best price on the market. It is chiefly requested by the furniture industry. With its uniform and narrow annual rings it is also much used in the Orient for musical instruments. On account of its high value, Macedonian Pine is not used for flume construction in the logging operations.

The Results of P. peuce Cultivation in Central Europe.

There are not many cultivation plots of the Macedonian Pine in Central Europe. Only a few individual trees are to be found in scattered places, from which of course we are not apt to derive any practical conclusions. A larger cultivation of about 25 by 10 meters extension is that pure stand of Macedonian Pine in Grafrath near Munich, Bavaria, which I have already mentioned. This stand was planted by the former Professor of Forestry, Dr. Heinrich Mayr, about 23 years ago, not because he wanted to find out whether the Macedonian Pine was immune to the blister rust, but only to enrich his Arboretum. The locality where grown is characterized as follows: Elevation 1,600 feet, average annual precipitation 32-36 inches, maximum of rainfall in June-July, heavy late and early frosts are usual, sandy loam soil with calcareous gravel (not granite soil as in the original range of Macedonian Pine). The average heights of the dominant 23-year-old P. peuce trees are 240 to 300 inches, and the maximum about 320-360 inches (border trees, see Figure 2). Annual growth in length runs up to 12 and 20 inches. Diameters breast high average between 3.6 and 5.6 inches, with maximums between 4.4 and 6.6 inches. (See Figure 3).

There is no doubt that this young stand of Macedonian Pine at 1,600 feet elevation is growing better than the original second growth at 6,000 feet elevation and over 6 degrees of latitude farther south. The other fact is that there is not very much difference between P. peuce and P. strobus in the same locality and under equal conditions. Considering such results and the immunity of P. peuce in addition, one has - if there is any need for replacing P. strobus by another five-leaved coniferous tree either in Europe or in North America - to start first with experimental cultivation of the Macedonian Pine on a larger scale.

The practice of planting the Macedonian Pine by seeding in the nursery is not as simple as one might think. The seeds are of heavy weight (100 seeds weigh 3.95 grams) and nearly 100% of excellent appearance. However, germination is very slow, being delayed one to two years, probably owing to hardness of the seed-coat. One can assume that in the first year about 25 or 30% of the seeds will germinate, in the second spring about 50%, and the remainder in the third year. This is a big hindrance to the artificial cultivation of Macedonian Pine. Hastening the germination by treating the seeds with chemical solution before seeding is not very successful and not advisable. But, perhaps, exposure to frost with extremely low temperatures may be a way to hasten the germination, as it has proved true with Eastern and Western White Pine in America. No one has tried that yet with Macedonian Pine as far as I know.

In the natural range of Macedonian Pine the seeds are distributed chiefly by birds (a Balkan species of the jay family). Wind distribution is effective enough only on steep slopes, since the seeds are heavy and the

short wings break off easily at maturity. Natural germination results on burned-over areas, not ordinarily on fresh burns as in the case of Lodgepole Pine, but under a thick ground cover of Balkan genista (Genista absinthoides), 2 to 4 feet high, which keeps the moisture in soil.

Besides the Grafrath cultivation there is another one in Northern Europe, in the private Arboretum "Mustila" of Mr. Tigerstedt, a leading forester of Finland. This stand is about 30 years old and also free of blister rust as far as I know.

To America, which is unprecedentedly endeavoring to save its five-needed coniferous stands from this pestilence, I would suggest that attention be paid also to the Macedonian Pine and that it be planted experimentally within the range of the blister rust.

Comment:

Dr. Müller very kindly supplied this Division with several pounds of P. peuce seed which will be used in experimental planting. A small amount of planting stock of this species will be available soon from seed sown in 1929 and 1931 and will be tested for susceptibility to the rust. Dr. Müller's observations show that the Macedonian white pine may have possible value in the United States and we hope to have thorough tests made of it both as to growth under various site and climatic conditions, and as to freedom from rust. However, our northern white, western white, and sugar pines are the cream of the United States forest species, and it is more reasonable and practicable to apply local control to protect these splendid native stands than to plant an exotic species in their places, especially since on most sites the cost of such protection is less than that of planting.

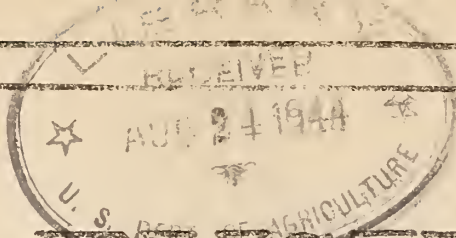
Five-leafed pines now form natural stands over millions of acres. Even if we consider only the very best quality of the present five-leafed pine sites in the United States, a total of more than 20 million acres is involved. Forestry is not yet sufficiently developed in America to permit us to consider replacement of the white pines through planting on the tremendous scale which would be required. This is shown by our experience with the forests destroyed by chestnut blight, in which practically no attempt has been made to replace them through planting. We believe that foresters in all of the white pine regions should make experimental plantings of P. peuce, to ascertain the growth and yield of this species under the various conditions of climate and soil. It will take an entire forest rotation to answer these questions, but if Macedonian pine succeeds well during the early years of trial, we would be justified in advocating large scale experimental planting.

World-wide history of attempts to use exotic forest species to replace native species show that the odds against exotics are great. Obviously, we can regard the Macedonian pine only as a hopeful possibility. In Germany, the commercial white pine species are all exotic and, therefore, there is little difficulty under these conditions in substituting P. peuce for P. strobus, but with our millions of acres of natural five-leafed pine forests, ours represents an entirely different situation from Germany's. However, forest planting in the United States is gradually increasing and no time should be lost in determining the value of Macedonian pine for such use, as Dr. Müller suggests.

We greatly appreciate Dr. Müller's contribution and his interest in our work. When he was in the United States several years ago, he acquainted himself with our plan of control action, and termed it "Man's greatest battle against Nature." We hope Dr. Müller will contribute additional articles to the Blister Rust News.

March 21, 1932.

S. B. Detwiler.



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THE BLISTER RUST NEWS

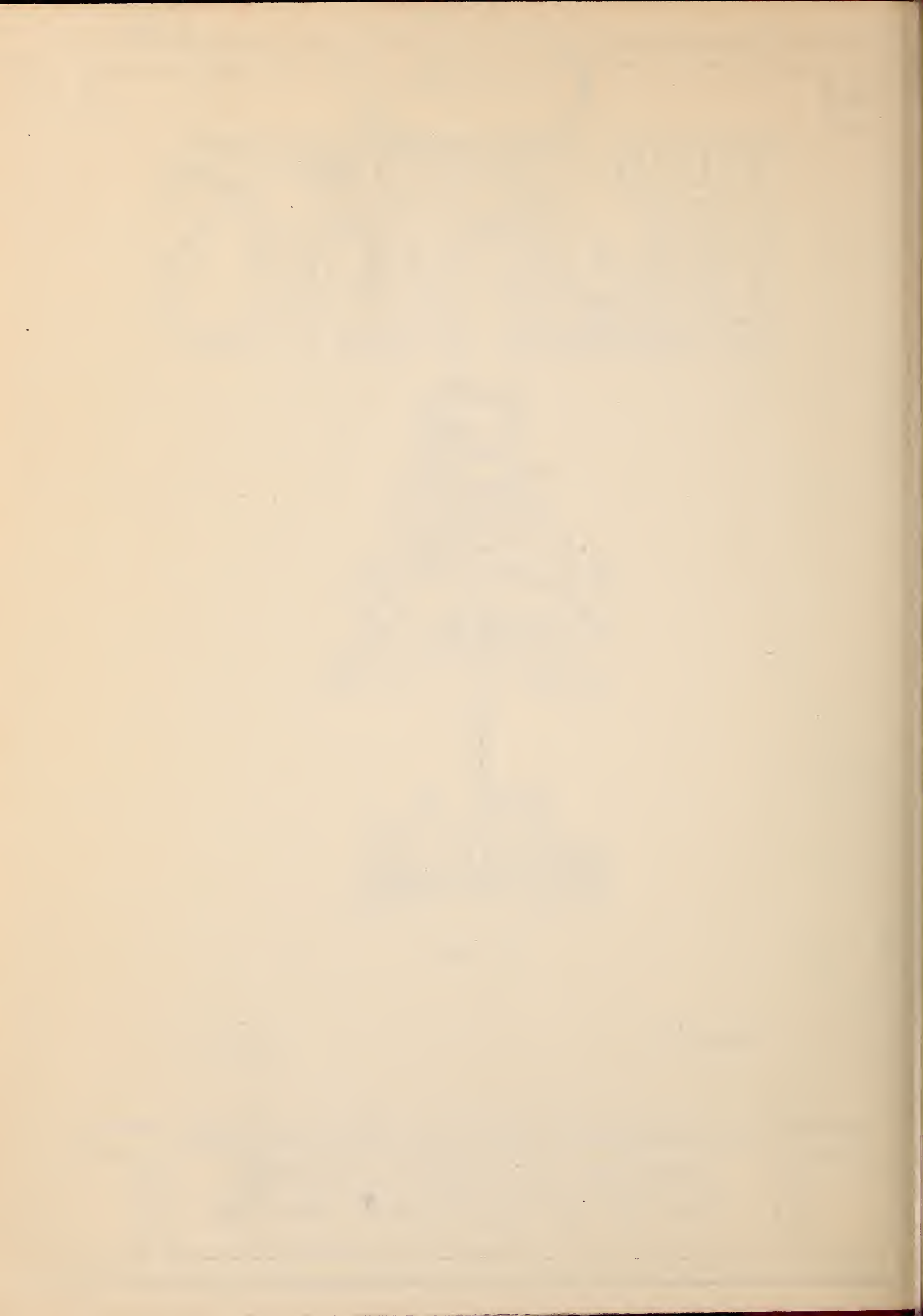


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U.S. DEPARTMENT of AGRICULTURE
BUREAU of PLANT INDUSTRY
DIVISION of BLISTER RUST CONTROL



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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and Cooperating States

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April, 1932

PUBLIC ACCEPTANCE

What does it mean and why use such a term? The term Public Acceptance has frequently been used by your agent in blister rust talks in western Massachusetts during the past season with seemingly good results. A short time ago this term was used to emphasize one point in a letter to the Editor of the News. Immediately, he came back with a request that I elaborate on just what is meant by the term as supplied to our work.

In brief we mean that the public, that is the pine and Ribes owners in general with whom we have dealt, have accepted our program by taking actual part in the destruction of currant and gooseberry bushes both wild and cultivated when so situated that they may be a menace to white pine.

To illustrate further let me quote a few lines from our State Leader's Annual Report for 1931. He writes regarding black currant eradication work - "The encouragingly responsive attitude of the public is reflected in the record that 631 owners removed their black currant bushes numbering 4,776 plants. In percentage figures, 47% of the owners removed 41% of the Ribes, expending the equivalent of \$722.75 in eliminating these bushes from their premises." From another page of Mr. Perry's report where he comments that the agents' work has been instrumental in preventing increased damage by the rust, he continues - "This result has been attained by securing an encouraging degree of cooperation from 1,014 property owners and the work has also been conducted with a still more remarkable minimum of complaint and dissatisfaction on the part of a critical public. Suffice it is to say in addition, that it is no child's play to condemn and confiscate the property of more than 2,000 individuals during any one calendar year, even though the value involved per owner is not large." That, it seems to me indicates Public Acceptance.

Public Acceptance is not secured by a slight turn of the hand or by waving a magic wand. Rather it comes only after careful planning and an infinite amount of persistent hard work by all connected with the cooperating departments.

March 11, 1932.

G. Stanley Doore, Mass.

PREERADICATION SURVEY IN CONNECTICUT

The leaves of the cultivated gooseberries are just appearing (New Haven, April 6) and the buds of the cultivated red currants appear to be about ready to open. There are no signs of leaves on the wild Ribes yet. Considerable search has failed to disclose fruiting cankers on pine so far this season.

This past winter Mr. M. R. Adams made a preeradication survey of the towns of Cornwall, Canaan and North Canaan. White pine areas were mapped and the pine classified as to diameter and also as to treatment required in protection against the rust. The pine classification demonstrated at the Lakeville Conference was used. The Ribes factor for these areas will be obtained this spring.

A strip survey taken in conjunction with the preeradication survey in Cornwall showed that 11.84% of trees under 20 ft. (90% were under 10 ft.) were infected. These strips were scattered throughout the towns and probably represent a fair estimate of infection on young pine for the town as a whole.

An interesting fact brought out in connection with the preeradication survey is that the control area necessary to protect the scattered stands of pine in Cornwall is about seven times the acreage that will be required to give equal protection to the same pine area if it were in a single block. The increased danger of excessive weevil damage in large areas of pure white pine appears to be a valid argument against large block planting, but on the other hand there is an equally strong argument for concentrating white pine plantings from the standpoint of economical protection against blister rust damage. A compromise might be made by confining white pine plantings to the natural pine areas in the valleys and designating such general areas as blister rust control areas. Thus we might secure numerous small pine blocks located close enough together to considerably cut down the protection zone acreage.

J. E. Riley, Conn.

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ANSWERS TO QUESTIONS ON BLISTER RUST CONTROL

The Washington Office has recently received from New Hampshire an instructive, 3-page, mimeographed leaflet on blister rust control, entitled "Answers to Questions". The beauty of the publication is that it answers nearly every question on the blister rust and its control in New Hampshire that one would ask. Copies of the leaflet are already in the hands of each of the State Leaders and if the agents desire to see it they could probably secure a copy from their State Leader.

R.G.P.

TUBERCULINA MAXIMA

March 1, 1932.

Dear Mr. Detwiler:

You will recall that there has always been some uncertainty regarding the actual identity of the fungus that we have called Tuberculina maxima which occurs in the West on blister rust cankers, and elsewhere in the country in association with other rusts. The uncertainty in this case was whether this fungus was actually identical with the fungus which passes under this name in Europe. Some months ago Dr. Meinecke submitted specimens to Tubeuf of Munich and has received the following reply:

"The specimens you sent are actually Tuberculina maxima for which I have shown that it lives on the aecia of Peridermium strobil as well as on those of P. cornui on Pinus sylvestris. You may consult my article on the biological control of the White Pine blister rust in Zeitschr. Pflkr. 40: 177, No. 4, 1930."

This would seem to settle the question.

Sincerely,

Haven Metcalf,
Principal Pathologist in Charge,
Division of Forest Pathology.

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WOODLOT IN CHELSEA, VERMONT, SHOWED 90-100% INFECTION

Recently, while in the town of Chelsea, Vermont, a pine area that had been inspected in 1925, but on which the Ribes had not been eradicated was reexamined. The area, known as the W. C. Reed Lot, consists in part of approximately 10 or 12 acres of pine ranging in size from seedlings to 60 ft. in height. In 1925, heavy pine infection was found, with Ribes very abundant on part of the area, while on the other part conditions were more normal with some pine infection and Ribes much fewer. At that time the owner was advised not to protect the heavily infected part due to the fact that infection was so heavy, and with Ribes being so numerous the cost would be excessive, but to protect the less infected portion which could be cleared of Ribes for a small sum. However, even this was not done.

The 1932 inspection showed approximately 90-100% infection on the larger trees on the area that was heavily infected in 1925. No effort was made to inspect small trees on account of snow. Infection dates back about 20 years and due to the fact that most of the trees have long side branches, the infection is just starting to reach the trunks. The most striking feature of the area is the large number of infections on some of the trees. In some cases indications are that the tree will be killed before infection reaches the trunk due to the killing of numerous side branches.

F. H. Rose, Vermont.

"JUSTICE TO THE WORKER OR "JUSTICE" TO THE WORK - WHICH?

In the February issue of the Blister Rust News under the title "Why Bushes are Missed", Mr. Ninman of Wisconsin gives the results of his investigations to find why certain bushes were missed. In conclusion he writes, "There is no justice in checking an eradication area after a season's growth of Ribes. Rather the eradication should be checked immediately after the work is completed". I assume that Mr. Ninman has in mind justice to the man who did the work. I am certain that all who have had experience in the eradication of Ribes will agree that to accurately determine a man's efficiency on an eradication job we must take into consideration the condition prevailing at the time he did the work. This is true regardless of the time the check is made. Mr. Ninman's conclusion is correct if the sole object of the check is to determine the efficiency of the man who did the work. In my opinion, however, the more important object of the check is to determine the quality of the work with reference to the protection it affords, and to correct any inadequacy of protection by the eradication of any missed bushes. I have seen instances where the efficiency of the worker was as high as could be expected under the conditions prevailing at the time the work was performed, yet a check of these same areas the following spring revealed that relatively poor protection had been given to the pine. Justice to the man who did the work permitted no lowering of his efficiency rating, but justice to the work demanded immediate reeradication. I believe that a check made the spring following the eradication gives the best indication of the quality of the work.

The results of Mr. Ninman's investigations point out the wisdom of spring checking as far as adequacy of control is concerned. At no other time of the year would it be possible to find a higher percentage of those small bushes with only five or six inches of upright live stem. If there are many of these and if - as Mr. Ninman's investigations indicate - they can be expected to increase their live stem by twelve or thirteen inches in one season's growth, the need for reeradication within one or two years is clearly evident.

It is not always practicable to check every eradication job the following spring, but it is important to check as many as possible of those areas which were worked during the latter part of the previous season. In Massachusetts every cooperating pine owner is encouraged to check the eradication work on his property the following spring. A reminder, either in the form of a card or a letter, is mailed to him about the first of May. The work which the owners do, supplements to some extent the checks that we are able to make.

March 21, 1932.

William Clave, Mass.

WOODLAND MAPPING PROGRAM IN DISTRICT #8, NEW YORK

We have had a most unusual winter here in District #8. So unusual that many of the farmers and milk plants have experienced considerable difficulty in getting up their ice. The Gould Paper Company has also had trouble keeping their ice roads in shape for tractor and sled hauling in the North Lake region. But I guess I'd better not comment on our mild, open winter too much after that "big 5-day blow" of March 6-11, - all roads plugged, whole communities isolated with no mail for a week, country and even village schools closed. One of the big county plows is reported lost or completely snowed under in the Mohawk Hill section (Route 26). As Will Rogers might say, there are still two things we find hard to manage; one is "Old Man Depression", and the other is "Old Man Winter" when in an ugly mood.

Due to our mild open winter we were able to carry on our field woodland mapping program in District #8 longer than usual. These maps are now complete for Lewis County. A start has also been made in Herkimer County where the five southern townships have been mapped. A large part of my winter program was of course taken up in working this field data into woodland tracings, also getting the white pine plantation owners for District #8 (Lewis, Oneida, and Herkimer Counties), listed in order on a township basis. In spite of our belated winter of the past week we contemplate an early spring and with a new district, and a District Forester (Mr. Grant M. Powell, with headquarters at Lowville), as provided in the enlarged forestry program under the Hewitt Amendment, we look forward to a banner year in both forestry and blister rust activities in District #8.

T. P. Woolschlager, N. Y.

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EARLY SPRING IN RENSSELAER COUNTY, NEW YORK

Members of the Ribes family are noted for leafing out early in the spring, but evidently even they cannot be depended upon as harbingers of spring. While doing some mapping on March 3d, I found a gooseberry bush (cynosbati), which had begun to put out leaves, probably during a warm spell which we had in February. When found, most of the leaves were frozen but some of the smaller were still alive.

At the time of writing this item, snow to the depth of 30 inches is reported in that vicinity.

H. J. McCasland, N. Y.

Note: Mr. McCasland advises the leaves in question were not infected.

H. L. McIntyre, N.Y.

LIST OF AGRICULTURE DEPARTMENT PUBLICATIONS TO BE SENT FIELD EMPLOYEES

At the request of the Washington Office, the Division of Publications has added to their mailing list for the monthly list of publications of the Department of Agriculture, all the regular field employees in the Division of Blister Rust Control.

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BLISTER RUST KILLING ADVANCE PINE REPRODUCTION IN MASSACHUSETTS

While doing initial Ribes eradication work on the Templeton Colony of the Massachusetts Department of Mental Diseases during the summer of 1926, we came upon an area of skunk currants growing in a damp run. The Ribes were not especially numerous, but it was noticed that the white pine reproduction in immediate proximity to the Ribes was rather heavily infected with blister rust. During the field season of 1931, I had occasion to visit the location again and to my surprise I found that the white pine reproduction had apparently disappeared. A closer examination of the portion of the area nearest the concentration of Ribes revealed many of the dead trees still standing or lying on the ground where they had fallen. For my own interest and satisfaction, I took sufficient time to mark with a stake the location of every white pine, living or dead, that I could find on a small plot. This was done after the rush of the Ribes eradication field season was over. The result was striking. The plot was a little over an eighth of an acre in size, and irregular in shape in order to take in the ground where the close association of Ribes and young pines prevailed. On this plot, 46 white pine trees were found; others had without any doubt completely disappeared. These trees or remains of trees were from 1 to 5 feet tall, but most of them were in the smaller classes. Forty of these trees were dead, and of the 6 still alive, 4 are infected with the blister rust and will, no doubt, die within a few years.

Because of the small size of the plot, this is not a striking case of commercial damage. It is, however, an excellent example of the fact that Ribes are capable of destroying all white pine reproduction in the immediate vicinity. In this plot the Ribes were localized in a small area but their presence in that association with white pine reproduction clearly prevented the survival of the white pines on the area. Although we have appreciated the fact that white pine seedlings are being killed in great numbers every year in areas where Ribes are prevalent, conclusive proof such as was here casually noticed, seems to me to be worthy of mention at least, as a definite record.

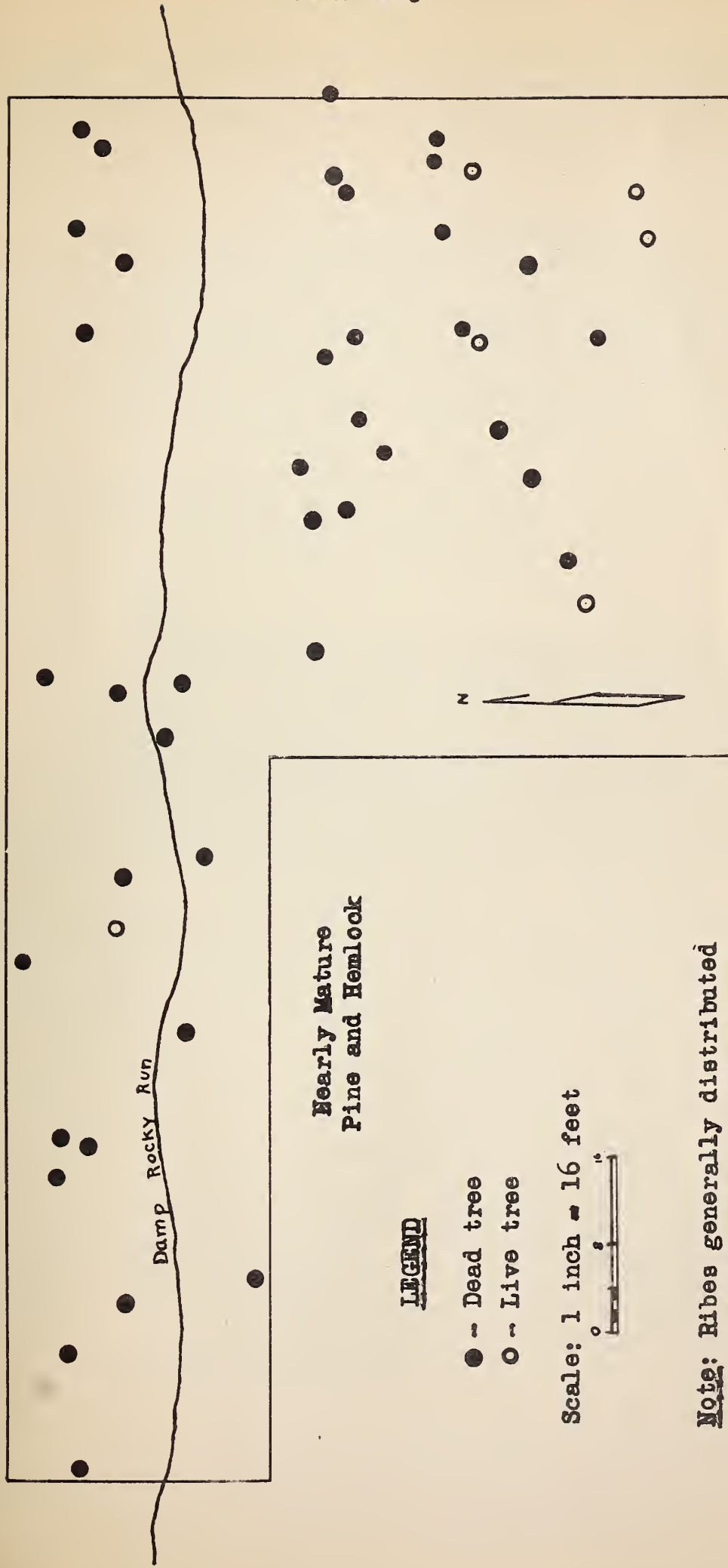
The accompanying sketch shows the approximate location of the pines on the plot. The Ribes were generally distributed on the plot.

February 8, 1932.

William Clave, Mass.

Nearly Mature Pine
and Hemlock

Hardwood Reproduction



LEGEND

- ~ Dead tree
- ~ Live tree

Scale: 1 inch = 16 feet



Note: Ribes generally distributed
over area but not numerous.

Alder

SKETCH SHOWING BLISTER HUST DAMAGE TO WHITE PINE REPRODUCTION ON AREA

LOCATED AT TEMPLETON STATE COLONY - TEMPLETON, MASS.

Data collected by Clave - 1932.

CHARITY - A VIRTUE EVEN IN CRITICISM

I believe that Mr. Root's original item regarding the value of employing inspectors who can speak other languages was prompted to a degree at least by a previous item contributed by Agent Wheeler of Massachusetts. For that reason I may be permitted the use of the columns for just one further comment regarding the criticisms that received so much prominence in the February issue.

In my humble opinion some of the criticism so pointedly directed at our editor is rather harsh. I do not refer to the comments that have come out of the West, for such criticism is helpful and is appreciated by anyone. We all make mistakes. Why not forgive the editor when he makes an occasional error in his French. Above all, let us be charitable in our criticisms, at least in the printed word. That principle, it seems to me, is elemental.

March 5, 1932.

C. C. Perry, Mass.

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WHITE PINE PLAYS IMPORTANT PART IN RECLAIMING
ABANDONED FARM LANDS IN NEW YORK.

During the past few weeks I have had occasion to visit some of the other districts in the State and go over many pine areas. I have come to see that the blister rust problem is centered almost entirely around the abandoned farms in this State, either because they were stocked naturally with white pine or because they are being reforested with white pine.

History tells us that from about 1870 down to the present time farms have been abandoned at an increasing rate. Fortunately, seed trees of white pine were adjacent to some of these early abandoned fields and as a result have already produced a crop of timber. Many other old fields seeded into pine, are fast approaching maturity or merchantable size while others of more recent abandonment are just beginning to seed in. I know of no species of tree in the State that is rendering as great a service toward reclaiming idle land by natural seeding as is the white pine. If every abandoned field had these seed trees near, there would be no reforestation problem today. The important thing in our work, of course, is to keep pace with these abandoned areas to see that the work of nature may go on unhampered by disease. Our efforts in blister rust is our contribution toward solving the abandoned farm problem for New York State.

H. G. Strait, New York.

MASSACHUSETTS AGENTS COOPERATING WITH STATE EXTENSION FORESTERS

In cooperation with Mr. Parmenter, Extension Forester of Massachusetts, a thinning and pruning demonstration plot has been established in a small stand of white pine in Sterling, Massachusetts. The plot is located beside the main road from Worcester to Gardner which is frequently used by pine owners living in the northern part of Worcester County.

The owner of this piece of property had recently pruned the pine on a small area with an axe. No thinning had been done and every tree on the area had been pruned to half its height. Our plot was established almost adjacent to this area so that the contrast between axe and saw pruning is readily visible. A sign was put up on the roadside between the two areas pointing out the right and wrong way of pruning.

The trees on our plot were tagged so that anyone visiting the area can see what sized trees can be profitably pruned and also trees that are too large for profitable pruning. Two wolf trees were left on the area and tagged to show that this type tree should be taken out to benefit the surrounding straight trees

March 5, 1932.

William Clave, Mass.

* * * *

For the past two or three years we have been of some service to the Massachusetts State Extension Forester by furnishing leads, mailing lists and various data that only a blister rust agent could submit with any degree of accuracy. The agents are in a unique position insofar as extension forestry is concerned, because they know the various wooded areas (soft woods especially) that are most adaptable to forestry practices. They also know the temperament of the various timber land owners and the proper approach that should be made when it comes to follow up calls, soliciting additional cooperation of any kind. For various reasons, I have been unable to cooperate with the Forester in field trips, the principal reason being that it could not be done without interference with regular duties. However, on March 23, we were able to join forces as it were, to our mutual advantage. Mr. Parmenter joined your agent in an inspection of 6 choice pine areas in Franklin County. In blister rust control work during 1924 and 1925 these owners cooperated 100 per cent. We again sought cooperation from the "big six" with the idea of securing another 100 per cent cooperation in connection with introducing additional forestry practices, our office seeking blister rust control cooperation and Mr. Parmenter seeking cooperation in weeding, thinning and pruning. The results of our efforts were very encouraging and I feel that within a year we shall have actual proof of complete cooperation in every instance.

Let us consider the layout with our first prospect, Mr. X. of New Salem, one of the largest pine owners in the county, a prominent town official and one who knows how to avoid the use of red ink in the ledger. A man who took an active part in accepting on behalf of the town a tract

of land given by the New England Box Company on which to establish a town forest. This area, by the way, was protected from blister rust in 1925 before the planting of white pine on it in 1926. The few trees that died soon after planting have been replaced. The area looks fine, due largely to Mr. X.'s interest in the proposition.

The purpose of our call on Mr X. was to secure cooperation in establishing a forest demonstration plot on his land. The site is in a general pine area that is ripe for weeding and other work. The plot is in one corner at cross roads, within sight of his home and bordering on a hard surfaced road. An ideal location in every respect. When work on the plot has been completed and Mr. X. has had time to reflect, I am confident that the whole area will undoubtedly be given similar treatment. We shall then see one of the finest pine areas in the section swing under silvicultural management. It will mean considerable because of its location and the fact that the owner controls several hundred acres in the neighborhood well stocked with pine.

In connection with our call on Mr. X. I learned that he is continuing the hunt for wild Ribes in and about his pine lots. He says, "I am finding a lot of very small bushes where we found so many large ones when you were here years ago." He also mentioned the fact that since the initial working of his property he has purchased an adjacent farm on which there is some white pine and that he is finding and destroying Ribes on that area. During the inspection of the area we did not find any young infection on pine.

Even with all of Mr. X.'s cooperation in establishing control on his pine areas he counts as only one of a great many that gives us the right to use the term Public Acceptance, in relation to our control work. In a few years some one else in this vicinity will be checking up to prove the right to use that same term in connection with forestry and if I am not greatly mistaken Mr. X. will be one of the first real counters in that project too.

March 12, 1932.

G. Stanley Doore, Mass.

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ASIATIC RIBES IN EARLY LEAF

Specimens of Ribes fasciculatum, a species native to Northeastern Asia, was found in partial leaf at the Arnold Arboretum, Boston, Massachusetts, on March 8. This species, especially the variety chinense, apparently requires very little warmth to stimulate its buds and develop its foliage. We have had no above-normal temperatures thus far this season, and yet on one plant nearly normal sized leaves had developed on the lower, somewhat protected branches.

March 9, 1932.

C. C. Perry, Mass.

RIBES ERADICATION AND RATTLESNAKES

Now that the writer has been apprised of French "par excellence" after a considerable skirmish, he probably lays himself open to attack when he attempts to discuss rattlesnakes. But the article by Tom King, "Spring, The Best Time to Eradicate Ribes in Rattlesnake Territory", is interesting if not a bit amusing to us fellows in the West. It is not that we haven't the inherent fear or timidity of these reptiles, but their rather wide range, particularly in California, almost places them as an everyday pest during the summer months to be dealt with in the usual way. They are not looked upon with impunity nor with contempt - neither are they so greatly feared as one might expect. They do not seem to hinder the normal activities of man or beast throughout their range.

Not once, but many times have we in the West felt that an early spring eradication of Ribes would be advantageous, not because of the fear of rattlesnakes later in the season, but mainly because of visibility of the bushes at this time and other factors which seem to facilitate greater efficiency of removal.

As the major part of our work in California has been and will be in rattlesnake country, we must run the chances of their danger. To accomplish anything at all in the way of reasonable acreage, it is adamant that we pursue our work during the activities of these snakes. It is not uncommon for two or three rattlers to be brought in by several crews for four or five consecutive days. Snake skins in varying degrees of curing either by salt, oil or smoke are seen about the camps. These later may adorn a headgear or be used to take in a reef or two around the girth of some husky Ribes "hound".

The grubbing-out of wild Ribes does place the worker in pretty close contact with Mr. Snake. It is surprising, yet indeed very fortunate that no one has been bitten, but there have been some close calls. Precautionary measures are taken in the way of high-top boots or puttees. "Anti-venin" kits are always close at hand. Most of the crew-men become accustomed to the whir of the rattlers and seem to possess an uncanny sense of their presence and act accordingly.

These few remarks are not written to minimize the danger of these reptiles nor in a spirit of jest regarding the attitude of some of our eastern friends. Were the rattler as common in New England as in California, I fain would believe the attitude would change and the work go merrily on throughout the season.

March 15, 1932.

G. A. Root, California.

BLISTER RUST STORY IN MINIATURE

A practical and attractive blister rust exhibit, constructed for use at the Philadelphia sesqui-centennial several years ago, may suggest something of interest along the same line to other blister rust enthusiasts.

This exhibit portrayed a countryside landscape in miniature, and included a house with a garden containing the inevitable black currants, a stone fence and rock outcrop with their ever-present Ribes, a few scattered pines and a pine woodlot in the background, and a hillside planted with young pines.

The base of the mount was a 24" x 30" tray, 3" deep, with beaver-board bottom and lumber sides. This was filled roughly with crumpled newspapers soaked in very liquid plaster paris, so as to provide general counters for the intended terrain, yet avoid too much weight. On this base, when hardened, a half inch of standard plaster paris mixture was spread to constitute the finished ground surface. While this layer was still soft, shale chips and small stones were inserted to complete the "geology" of the landscape.

Water-color paints, or better, green stained sawdust scattered on fresh shellac, simulated grass and pasture land. Chips of stone bonded with sealing wax contributed a picturesque stone fence, and lengths of twigs with two strands of wire made a garden fence quite realistic enough for the purpose. The house came from a toy shop. Bits of decorative dried maidenhair fern, dyed green, obtained from the 5-and-10 store, made presentable currant bushes and wild Ribes plants. The large pines came also from the toy shop, while the young pines were imitated by sprigs of dyed myriophyllum from the same source. The soft plaster was easily bored for insertion of the trees.

Because of the reduction in size very crude representations of the various features will be accepted by the eye, which is compelled to view the exhibit as a true landscape and therefore does not examine details closely. No attempt was made to show the rust itself on this miniature scale, but by labels, arrows and strings the various rust relations among the pines and Ribes present were well indicated. Among these features the plan of an eradication zone around the young pine planting was well brought out and emphasized by a radius mark labeled 900 feet, and ending in the arc of a circle. A cord strung on pins served to visualize the radius and arc.

An exhibit of this type, accompanied by illustrations and actual specimens of the rust, ought to tell the story in simple and forceful way. And if it is ingeniously constructed it certainly attracts the attention of the public.

April 11, 1932.

W. A. McCubbin

Edit: Dr. McCubbin was formerly in charge of the Bureau of Plant Industry in Pennsylvania, but is now in the Plant Quarantine and Control Administration in Washington.

MASSACHUSETTS BLISTER RUST CONTROL FIELD MAPS SUCCESSFULLY
EMPLOYED IN FOREST FIRE PREVENTION

I recently received a request from Forest Warden C. E. Brown of Boxford, Massachusetts, for several copies of our outline field maps for use in connection with his duties as town Fire Warden. Upon further inquiry as to the use to which he proposed to put these maps, I received the following interesting reply from Mr. Brown:

"Last year the town of Boxford bought a forest fire pump and 2,000 feet of 1-1/8 inch hose. I find that with this pump it is necessary to know where all the water holes and brooks are located in the woods. On these maps I am going to put in all the woods roads and trails and also mark the springs, water holes, small brooks and swamps where there is water enough to use the pump. I have 6 deputy wardens located in different parts of the town and I will furnish each one with a completed map. I will also furnish the man in the fire tower in Georgetown with a complete map. He can then report fires to me and to my deputies by block number as you know your map is numbered between roads. When we receive a call from the fire tower by block number, we can then look at our maps, locate the nearest water available to the fire, and start for it."

Mr. Brown was employed on blister rust control work in the town of Boxford in 1922, this town being one of the first to be worked by Agent Roop at the beginning of the present control program. Mr. Brown became familiar with our maps at that time, of course, and now proposes to make another splendid use of them. The idea seems to be very much worth while and no doubt it might be used to good advantage by others.

March 11, 1932.

C. C. Perry, Mass.

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SERIES OF BLISTER RUST MEETINGS BEING HELD IN WARREN COUNTY, NEW YORK

A series of meetings on white pine blister rust and other forest pests are being held in the schools in Warren County. A talk of about twenty minutes is being given on blister rust and its control. Mention is being made of some other forest pests and something on the need of reforestation. Two braco films are shown; one on reforestation and the other on Blister rust and its control.

We feel that the meetings which we have had have been successful and very much worth while. All the school superintendents, principals and teachers are very willing to cooperate and glad to have the meetings held.

These meetings are being conducted by E. G. Woodward and N. H. Harpp.

N. H. Harpp, New York.

ALTERNATE HOST PLANTS

Appropos the item in the February issue relative to the occasional confusion on the part of the public regarding alternate host plants, my attention was directed a short time ago to a similar case of confusion. The incident related to an editorial in one of our metropolitan dailies, displayed under the stereotyped heading "To Save Our Pines". The editorial was particularly well written; was correct as to the facts involved until it concluded with the following unfortunate paragraph:

"The defence against this menace is simple, yet drastic. The farmer must cut every gooseberry, raspberry and currant bush within half a mile of a pine tree. He must choose between his pines and his berries."

Similar confusion prevails with regard to other host plants apparently, as evinced by the following quotation from a letter of inquiry of quite recent date.

"I understand that there is a law prohibiting the planting of currant bushes in Massachusetts. Several of my neighbors have planted currants and one man just made a currant bush hedge around his house. I have a quince orchard nearby and it is expensive taking the cedar rust off the trees every year. Is there a law governing this situation?"

This letter came from an enlightened and successful orchardist and it would seem as though he would know his diseases. In my opinion, such correspondence does not at all imply that there has been a serious failure in our educational work. It indicates rather, a state of mind that no amount of education will correct.

Blister rust is not the only disease that is responsible for some confusion in the public mind. On Sunday, March 12, another metropolitan daily of high repute, informed the public editorially in part as follows:

"Barberry bushes should not be overlooked. A bureau of the department has destroyed fifteen or twenty millions of them since 1918, but they stubbornly refuse to be eradicated. The senatorial theory is that a worm, generated in corn or wheat, becomes a fly, travels to a barberry bush, deposits an egg there, becomes a moth again, flies back to the corn and destroys it."

And so on!

March 14, 1932.

C. C. Perry, Mass.

SURVEY IN TWO EASTERN WISCONSIN COUNTIES SHOWS CONSIDERABLE WHITE PINE

A systematic survey of the white pine areas in Shawano and Waupaca Counties, Wisconsin, was begun during the past winter and completed just recently. There is very little that is especially unique about the survey procedure and no startling facts are disclosed; however, it does reveal that there is a large acreage of white pine in these two counties that should be protected from blister rust. This survey did not include the 10 townships of land comprising the Menominee Indian Reservation located in Shawano and Oconto Counties. The purpose of this survey is to get more detailed information on the location and extent of the white pine stands and to get more complete data as to infections in these stands with the idea of protecting them from blister rust. This information was placed on township map sheets using a scale of 2 inches equal to 1 mile. The pine was classified as mature, immature, and scattered. There were certain other subdivisions under each of these three headings.

Farming is the principal occupation in Shawano and Waupaca Counties and due to this fact the pine is found in woodlots. The size of these range from three to eighty or more acres with the average woodlot perhaps ten or fifteen acres. The stands are nearly all second growth timber that has come in through natural means. The acreage of white pine found in these counties is as follows:

	Acreage <u>Immature Pine</u>	Acreage <u>Mature Pine</u>	Acreage <u>Scattered Pine</u>
Shawano County	4,438	None	5,076
Waupaca County	5,304	325	7,233

T. F. Kouba, Wisconsin.

- - - -

WISCONSIN WOODLOT ON ANNUAL YIELD BASIS

100,000 to 150,000 board feet of lumber has been the annual yield for the past 6 years, except in 1929, from a second-growth 60 acre stand on white pine in the town of Helvetia, Waupaca County, Wisconsin. In 1929 a strong wind had blown down so many trees that in order to salvage them 235,428 board feet were removed that year.

This is one of several very good pine woodlots that we have mapped during our white pine survey in Waupaca and Shawano Counties during the past winter.

E. W. Atkins, Wis.

OLD BOOK GIVES VALUE OF WHITE PINE FOR SHIP TIMBER

In the Report of the Commissioner of Agriculture for the year 1866 appeared an article on "Ship Timber in the United States" by Wm. W. Bates of Chicago. The following extract from Mr. Bates' article will be of some interest even today, for the sturdy qualities of white pine have not changed:

"White or northern pine is found at the head of the list of the softer woods used in building vessels of every description. It grows more or less abundantly in every northern State of the Union from Maine to Minnesota, often reaching an altitude of one hundred and eighty feet, with a diameter of six or more. It is principally used for deck plank, waterways, bulwarks, cabins, masts, and spars. In the construction of river steamboats white pine is invaluable, and is sometimes used in almost every part of the boat, except the frame, above light water mark. This is on account of its exceeding lightness, strength and durability. No wood is better adapted to withstand the sun and weather, for with proper seasoning and reasonable protection after the work is finished it retains its properties as long as the best kind of oak. We have seen, however, that poplar has for some years past been substituted for pine in building the cabins of boats on the Ohio and Mississippi rivers, so that this favorite wood is not without a rival in steamboat joinery.

"There are many varieties of the white pine; the lightest and the heaviest woods differing in density at least twenty per cent. The average weight of a cubic foot of seasoned New England white pine is 25 pounds. In the middle and northwestern States and in Oregon this timber is often found having a seasoned weight of 30 pounds to the cubic foot. ****."

R. G. P.

- - - -

FORESTERS RENAME TREE TO PRESERVE IDENTITY

Ponderosa pine will hereafter be the official common name for the tree species Pinus ponderosa, formerly known as western yellow pine, according to an announcement by the Forest Service, United States Department of Agriculture.

The Ponderosa pine tree and its wood have been known under so many common and trade names that it was in danger of losing its identity. In different sections the tree has been known as yellow pine, big pine, western pitch pine, Montana black pine, and bull pine. In the lumber trade the wood is known as Ponderosa, Arizona white, western soft pine, and many other names.

(Extract from Clip Sheet of the U. S. Dept. of Agriculture.
March 13, 1932.)

GROWTH STUDY AT
ST. JOHN'S UNIVERSITY, COLLEGEVILLE, STEARNS COUNTY, MINNESOTA.

White Pine Makes the Best Showing of Five Species Planted.

To my knowledge the oldest forest tree plantations in the State for which authentic data as to date of planting and spacing are available are at St. John's University, Collegeville.

During the past fall the author made measurements including growth in these plantations. The following table gives the data concerning the number, and size of the trees on the plots measured in the different plantations.

Plot No.	Area Acres	Date Planted	Species	No. Trees	Average D.B.H.	Height
1	1/10	1894	W. Pine	4	13"	50'
			S. Pine	7	8-5/8"	44'
			N. Spruce	4	10-1/4"	52'
			W. Cedar	<u>4</u>	6-3/8"	--
				19		
2	1/10	1894	Scotch Pine	29	8"	49'
3	1/10	1894	W. Pine	9	11-1/4"	58'
			S. Pine	<u>25</u>	7-1/2"	50'
				34		
4	1/10	1894	N. Spruce	57	6-3/4"	37' to 50'
5	3/40	1894	W. Pine	14	12-1/4"	45'
			N. Spruce	<u>26</u>	5-5/16"	37'-50'
				40		
6	1/10	1911	S. Pine	97	4-1/2"	28'
7	1/10	1899	S. Pine	75	7-3/8"	52'
8	1/10	1906	S. Pine	69	5-5/8"	30'
			A. Pine*	18	4-3/4"	--
			N. Spruce	<u>1</u>	4"	--
				88		

* Austrian Pine.

As to growth, in all cases the dominant trees are making the best growth. The white pine planted in 1894 is making the best growth; the largest trees increasing one inch in diameter every 4 years. The largest Norway spruce and Scotch pine in the 1894 planting, are increasing 1 inch in diameter every 5 to 6 years. The Scotch pine planted in 1899 is requiring 7 years to increase in size 1 inch; the 1906 planting of Norway pine and Austrian pine, 5 to 6 years.

The fastest growth observed was that of a 13 inch white pine which grew 1 inch a year for 2 years and then .09 of an inch a year for an additional 2 years. I had the misfortune of breaking off and losing a part of this increment core so that the years in which this tree made this remarkable growth cannot be given.

The soil on which these plantations were made is a well drained sandy loam.

The plots were all internal. In selecting the plots I tried to secure an area representative of the planting. The plots were 1 chain square except plots 5 and 8 which were 33 feet by 99 feet and 33 feet by 126 feet, respectively. This variation in size and shape was necessary to secure internal plots. The original spacing in the plantation is as follows:

1894 -	Scotch pine	8 x 6 feet
	White pine	16 x 10 "
1899	6 x 6 feet	
1906	4 x 4 "	
1911	6 x 6 "	

Some thinning has been made in these plantations. Data as to the number of trees on each plot indicate the approximate number that did not survive and which have been removed through thinning.

No blister rust is known to be in the neighborhood of this plantation.

L. B. Ritter, Minn.

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EARLY REPORTED AECIA IN MASSACHUSETTS

Agent E. M. Brockway reports finding aecia on pine at the Pembroke infection area in Massachusetts on March 30.

- - - -

MICHIGAN STATE COLLEGE ISSUES BLISTER RUST WARNING

In the 1932 Price List of Forest Planting Stock, sent out by the Michigan State College, Department of Forestry, there appears the following paragraph:

"White pine should not be planted within 900 feet of currants and gooseberries, the carriers of the blister rust, a serious white pine disease. Practical methods to control this disease have been discovered. Plantations of white pine can be protected by pulling up all wild or cultivated currant and gooseberry plants."

MR. DETWILER JOINS COMMITTEE TO DEVELOP A
NATIONAL PROGRAM OF LAND UTILIZATION.

Last November a National Conference on Land Utilization was held at Chicago under the auspices of the Secretary of Agriculture and the Association of Land Grant Colleges and Universities. The Conference provided for the establishment of two committees to develop a national program of land utilization, namely, the National Advisory and Legislative Committee on Land Use and the National Land-Use Planning Committee.

At the request of Dr. L. C. Gray, Executive Secretary, National Land-Use Planning Committee, Mr. S. B. Detwiler has consented to become a member of the technical committee No. V, Forests, Parks, Recreation and Wild-Life Preservation Areas.

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NORTHEASTERN FOREST EXPERIMENT STATION WILL BE MOVED TO
NEW HAVEN, CONNECTICUT.

Headquarters of the Northeastern Forest Experiment Station will be transferred from Amherst, Massachusetts, to New Haven, Connecticut, about June 1, the Secretary of Agriculture announced today. Under a cooperative arrangement with Yale University, the Station will occupy office and laboratory space in a building owned by the University.

Extract from U.S.D.A. Press Release, April 11, 1932.

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FULTON COUNTY FARM BUREAU PLANS PRUNING DEMONSTRATIONS

The Fulton County, New York, Farm Bureau through its Forestry Committee intends to establish a number of pruning demonstrations throughout the county. It is planned to establish plots both in plantations of white pine and in stands of natural reproduction. In the plot, demonstrations will be made of pruning all trees, and again of pruning only the crop trees. Cost data will be kept.

J. W. Charlton, New York.

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CONFERENCE PROCEEDINGS

It has come to our notice that some of the Reports of the Proceedings of the 17th Annual Blister Rust Control Conference held at Lakeville, Conn., were incomplete. Several of the agents have written in for new copies due to blank or missing pages. Should others have received incomplete copies, please inform us and we will see that you are supplied with good copies.

P U B L I C A T I O N S

Macedonian Pine

Tubeuf, C. v. Ist Pinus peuce gegen den Blasenrostpilz immun oder für ihn nur wenig disponiert? (Is Pinus peuce immune from the blister rust fungus or only slightly susceptible to it?) - Zeitschr. für Pflanzenkrankh u. Pflanzenschutz, xli, 8, pp. 369-370, 1931.

Pinus peuce, formerly believed to be immune from attack by white pine blister rust (Cronartium ribicola) (R.A.M., ix, p. 691), has now been shown by observations in Upper Bavaria to be slightly susceptible, though very much less so than P. strobus and P. monticola.

(Extract from "Review of Applied Mycology", February, 1932, Vol. XI.)

Sugar Pine

Anonymous - "The Doomed Yosemite Sugar Pines", 16 p. il. Emergency Conservation Committee Pamphlets, New York, 1931.

White Pine

Haig, I. T. - "Stand Tables for Second-Growth Western White Pine." Northwest Science, Dec. 1931, Vol. 5, No. 4, p. 94-98.

Steer, H. B. - "Northern White Pine Stumpage Prices in the Northeast", 1926-1930. Forest Worker, Nov. 1931, Vol. 7, No. 6, p. 14-15.

Stevens, Clark L. "Root Growth of White Pine (Pinus strobus L.)." 62 p. il., diagrs. New Haven, Conn., 1931. (Yale University - School of Forestry. Bulletin 32.)

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THE BLISTER RUST NEWS



May, 1932.

Volume XVI

Number 5

U.S. DEPARTMENT of AGRICULTURE
BUREAU of PLANT INDUSTRY
DIVISION of BLISTER RUST CONTROL



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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and Cooperating States

Vol. 16, No. 5.

May, 1932

BLISTER RUST CONTROL IN ONTARIO, CANADA

St. Williams

Ribes eradication was carried on at both Station No. 1 and No. 2 during the current year. Removal of wild gooseberry and currant bushes was affected for the first time at Station No. 2. Work in the above connection commenced on June 12th and was completed July 25th, entailing a cost of 739 hours. An area slightly in excess of 200 acres was covered.

At Station No. 1 where Ribes eradication has been consistently carried out for a number of years, inspection was renewed on July 30th, and by August 29th, over 800 acres were combed for gooseberries and wild currant. A total expenditure in time of 1,229 hours was necessary to find, dig and destroy 2,246 currant bushes and 2,415 gooseberry plants.

The value of these preventative measures is apparent when it is able to report that only one incipient case of white pine blister rust was encountered during the entire period of inspection.

Orono

A considerable start was made this season in the control of the white pine blister rust. All plantations within a radius of several miles were visited and where infections were located the owners were advised as to the measures to be adopted for control purposes. In the vicinity of the nursery itself all species of Ribes within an area of one square mile were destroyed to do away with the alternate host.

In the Durham County Forest, numerous infections were located in both mature and immature white pine. The situation has become so serious as to lead to a decision to cease growing and shipping white pine trees from the nursery until control measures have had a chance to become more thoroughly effective.

An experiment in spraying the various species of Ribes with chemical weed killers was attempted but was finally abandoned as being too dangerous to live stock.

Midhurst

An intensive Ribes eradication program was inaugurated at this station this year. This work is being carried on to insure that the white pine stock to be shipped from this nursery will be free from blister rust. It also insures the protection of permanent white pine plantations planted here from blister rust. This disease is making rapid progress throughout the province and white pine is in great danger. Altogether about five hundred acres were covered and 54,651 bushes of Ribes (wild black and red currants and gooseberry) were eradicated.

(Extract from "Report of the Minister of Lands and Forests of the Province of Ontario, for the Year Ending October 31, 1931".)

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WHITE PINE SURVEY IN WAUPACA COUNTY, WISCONSIN

A white pine survey of Waupaca County, Wisconsin, has been completed, and it has disclosed some unexpected results. Not only has blister rust been found within the county, but it has been found to be widely distributed especially within those townships which have most of the white pine. The infections, as nearly as we could determine, were of comparatively recent origin.

For purposes of classification we subdivided the pine into three groups: mature, immature, and scattered. The acreage of each type mapped in the county is listed below:

<u>Immature</u>	<u>Mature</u>	<u>Scattered</u>
5,304	325	7,233

Of the seventeen townships which were found to have white pine, infection centers were discovered in seven. Infection was found in 24 sections scattered over these seven townships.

April 30, 1932.

T. F. Kouba, Wis.

MICHIGAN AGENTS CONDUCT PINE SURVEY

During the months of January, February and March, Agents Kroeber and Thompson were busy in the counties bordering the west shores of Lake Michigan, extending from Oceana County north to the straits. The work consisted mainly of scouting and mapping pine areas in the Grand Traverse region. We covered 8 counties. This work was done between January 20 and April 10. In each county we scouted for blister rust, mapped all white pine areas showing pine worth protecting, scattered pine, and white pine planting sites separately. We interviewed white pine owners to secure cooperation and give information. In our interviews we secured definite promise from 28 pine owners to cooperate with hired crews in protecting a total of 3,553 acres of pine. We hope to secure the cooperation of pine owners on many other areas. A summary of this work is listed below:

<u>County</u>	<u>Acres in Pine Worth Protecting</u>	<u>Acres in Scattered Pine</u>	<u>Acres in Planting Sites</u>
Charlevoix	590	162	10,000
Emmet	420	1,290	6,000
Grant Traverse	7,805	26,960	16,000
Mason	1,748	1,492	100,000
Manistee	553	2,838	100,000
Leelanau	991	2,591	None
Antrim	640	1,780	30,000
Benzie	<u>1,454</u>	<u>4,785</u>	<u>20,000</u>
	14,201	41,898	282,000

Pine worth protecting includes both the native and planted trees, considered from commercial and aesthetic standpoint. Scattered or observation pine for various reasons not considered worth protecting, can be used for purposes of observation. Later they may become of value for reproduction. Planting sites were noted wherever the character and type of growth and soil constituted a white pine planting site.

We worked together using one Ford, chains, ax, mattock, shovels, and snowshoes. We covered each county systematically, following every road and trail, thus covering each county quite thoroughly. The winter being mild, and with little snow, we were able to get around unusually well. We found no blister rust on pine in any of these counties.

This inventory has given us a definite idea of how much pine we have in each county, where it is, that it is still apparently disease-free, and which counties should first be worked for black currants. We made individual contacts with the pine owners and advised them direct concerning the disease and its control.

Incidentally these counties represent one of the most important resort sections of the State.

PENNSYLVANIA AGENTS INSPECT BLISTER RUST INFECTION AREAS

Richard M. May and J. E. Gackenbach, blister rust agents, were in the Bald Eagle State Forest District from March 7 to March 13, inspecting white pine blister rust infections in plantations near the Halfway Camp in Union County in the Brush Valley Narrows.

Gackenbach left on March 14 to complete the white pine survey of the Gallitzin State Forest District. May joined Richard P. Fatzinger, State blister rust leader, in the Delaware State Forest District where infection studies are being made at Promised Land in Pike County. Similar studies are planned for the white pine plantations at Lookout Mountain near Oleona in Potter County in the Susquehannock State Forest District.

(Extract from the Service Letter of the Pa. Dept. of Forests & Waters, March 17, 1932.)

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CLASSIFICATION OF PINE LANDS IN NEW YORK

Spring is opening rather slowly in the North Country. On April 9 there is more snow in the woods than there was in January. On April 4 we started work in the town of Chesterfield, classifying white pine for future control work.

After working a week we have not found an area we could put into No. 1 Class. This perhaps will seem strange to some of the blister rust men who are more or less familiar with Essex County. If we have the right interpretation of this work, the reason for not finding more of this class is that Essex County had later lumbering than some of the other counties where this work has been tried out.

The past week has been ideal for this work, freezing nights hard enough to hold such men as Mr. Charles Cleland without the use of snowshoes. This gave us a chance to work back in the forenoon, and working open areas and highway boundaries in the afternoon.

April 9, 1932

B. H. Nichols, N. Y.

Edit: Class 1 under the New York system is the mature or middle-age stand with complete ground canopy and no chance for reproduction.

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ITEMS FOR THE BLISTER RUST NEWS

All material for the current issue of the Blister Rust News should be in the Washington Office by the 12th of the month at the latest since proof generally goes to the Duplicating Section on the 15th of the month.

R.G.P.

PROPOSED CARD INDEX WORK PLAN FOR MINNESOTA

It has been customary to make a general plan for blister rust control work in the State and specific plans for each calendar year. However, it is apparent that in order to secure the maximum results for the time and money expended that definite, detailed, systematic planning is needed for each project. For this purpose a card index work plan is proposed as follows:

1. A general outline of the work to be done by each man during the year or the period employed. This outline is to be kept in definite place in the desk of the State Leader.

2. A definite day by day schedule for one month period for each individual shall be drawn up the latter part of the preceding month. This schedule shall not necessarily be the final schedule. The individual shall have the privilege of rescheduling his work to meet conditions as they occur.

3. Index of projects under which shall be filed a red and white card noting each assignment as to the different subprojects given each man. The red assignment card shall be given to the individual; the white card remaining in the file. When he has completed this assignment he will return the red card together with a brief report of costs, results or other pertinent data. This information will be noted on the card, or if too lengthy, shall be typed and the position of the report in the files given on the card.

Example: Under the project "Scouting for Blister Rust" is a notation - look for blister rust on both hosts in a certain township where blister rust on Ribes has previously been reported. In planning the work for a certain period, it is noted that one of the men will be in this vicinity. The red card for this assignment is taken out of the file and sent to the individual in question.

A notation is made on the white card as to name of the individual and date of assignment. The man to whom the assignment is made does the necessary scouting in this locality, and notes on the red card that no infection was found, or if found, on what hosts and abundance, and returns it to the office.

A modification of the Dewey decimal system will be used in indexing the work plan cards. The first number shall refer to the project, the first number after the decimal point to the individual to whom the assignment is given.

L. B. Ritter, Minnesota.

Comment: Mr. Ritter would probably be glad to hear from any of the field men who have tried out the card index system. The need for systematic planning of each phase of the field operations is recognized and practiced by the field men. The card index system has probably not been used to any great extent but it might work out effectively if not so detailed as to require too much of the agents' time to keep it up-to-date.

Editor.

BLISTER RUST NOTES FROM NEW YORK

Phenological Data

Aeciospores were first seen this year on April 14th in Greene County, New York, town of Cairo, at an elevation of 600 feet above sea level. The pustules were just beginning to break open. Many other infections were seen during the week but none showed such an advanced stage in fruiting.

Tree Planting

The tree planting season has opened in New York State and indications point to a banner year. The season has been late so far with frequent snow flurries. The ground seems to be filled with plenty of moisture which should make a good season for planting.

Fruiting Currant Districts

One case at least has been brought to the writer's attention where an order of white pine had to be refused on account of the plantation being within the borders of a "fruiting district". In such areas, of course, the State nurseries do not ship white pine for planting purposes. The recent Supplement to the Blister Rust News on the Macedonian Pine (Pinus peuce) may make it safe to plant this species within such districts. In cases such as this I believe peuce will fill a long felt need.

The Conservation Department has amended the description of the so-called Columbia County fruiting current district by excluding therefrom the Towns of Chatham and Gallatin. That is to say, white pine may be planted within these towns and shipped from the State nurseries thereto.

April 16, 1932

H. G. Strait, New York.

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NEWS TRAVELS FAST

In the April issue of the NEWS, I commented upon the contemplated use of our blister rust control outline town maps in connection with forest fire suppression. The ink had scarcely dried on my signature to the letter to Town Fire Warden Brown, in which I notified him that I was sending him the maps, when the Chief Inspector of the Division of Fisheries and Game put in an appearance to request maps of certain towns in which his office maintains small reservations. It appears that one of these reservations is located in the town of Boxford, and Chief Inspector Bourne had been in conference with Fire Warden Brown, and had in that way learned of his plan to use our maps.

My only concern is that we may lose some of our negatives in the shuffle.

April 28, 1932.

C. C. Perry, Mass.

BLISTER RUST CONTROL APPEARS ON THE RADIO
IN THE UPPER PENINSULA OF MICHIGAN

John K. Kroeber, blister rust agent, who arrived in Marquette several days ago to make plans for the annual campaign to eradicate blister rust in Upper Peninsula forests during the summer months, yesterday discussed the future of forests in the Peninsula over WBEO, The Mining Journal radio station.

"We have in the Lake States today 20,000,000 acres of idle land", Mr. Kroeber stated. "Of this vast acreage the Upper Peninsula of Michigan has more than its share. Most of this land is not suitable for anything but forests; it supported forest growths originally and will do so again if given a chance." ****.

"The rust was first found in Michigan in 1916 near Detroit, on white pine seedlings imported from France. These seedlings were destroyed. In 1922, infected seedlings, also imported from France, were found near Grand Rapids. These plants were also destroyed. In 1928 blister rust was discovered for the first time on native white pine in Michigan at Indian river. Steps were taken immediately to arrest the spread of the rust. Further scouting revealed that the rust had invaded the Upper Peninsula. It was found on pine in Marquette and Dickinson Counties in 1929. To date, blister rust on pine has been found in five Upper Peninsula Counties; namely, Marquette, Dickinson, Menominee, Baraga and Iron. There seems to be two main centers of infection, one near Ishpeming and the other at Ralph in Dickinson County."

Ishpeming Area Haid Hit

"A study plot established near West Ishpeming revealed 60 out of 81 trees infected with rust, and several of them already dead. Another plot at Ralph showed 80 per cent of the older trees on a 160-acre area infected, and 86 per cent of the younger trees on the same area diseased, with 35 per cent of these young trees already killed. The rust cannot spread from these diseased trees to other pines. From infected pines it spreads only to Ribes. Therefore, if the Ribes in the vicinity of white pine stands are destroyed the trees cannot be harmed by the blister rust. Infection in the Upper Peninsula is comparatively new and as yet no great amount of damage has been experienced. Allowed to go on unchecked, however, blister rust will not only kill off our existing young pine forests, but render it impossible to grow new white pine forests to maturity on areas where Ribes are present." ****.

Blister Rust Law Enacted

"A State blister rust leader was appointed in Michigan in 1927, and in 1929 a State blister rust control law was enacted. This law provides for a blister rust organization and for the destruction of all cultivated black currants and the several species of wild Ribes near valuable pine. It also provides that all nurseries growing white pine must remove all Ribes, both wild and tame, within 1,500 feet of their pine to assure the production and sale of trees free from blister rust.

"Accordingly, a systematic program for the eradication of all cultivated black currants in the State was begun in 1929. Black currant

eradication in the Upper Peninsula was started in that year in Marquette and Gogebic Counties. In 1930 Dickinson and Menominee Counties were freed from this dangerous plant, and in 1931 Baraga and Iron Counties were added to the list. In addition many white pine areas were protected by removal of all wild Ribes within 900 feet of the trees. This work was accomplished through a cooperative arrangement between the pine owners and the State, whereby the owner furnished a crew of five men, and the State an experienced foreman who trained the crew and supervised the work of removing the bushes. Many city and county parks, school forests and private pine stands were thus protected.

**** "We are ready to help land owners protect their natural and planted white pine from blister rust", said Mr. Kroeber. "Write the blister rust agent, Upper Peninsula Development Bureau, Marquette, for assistance in handling your blister rust control problems."

(Extracts from the "Mining Journal", Marquette, Michigan, April 27, 1932.)

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W. O. FROST OF MAINE SPEAKS AT MEETING OF CAMDEN GARDEN CLUB

Camden (Me.), April 20. - The Camden Garden Club held its first meeting of 1932 Tuesday afternoon with members of the Garden Clubs of Belfast, Warren, Thomaston, and Rockland as their guests. The speaker, Walter Frost of the United States Department of Agriculture and the Maine Department of Forestry, gave a talk on the menace of white pine blister rust.

Illustrating his remarks with actual specimens of white pines in various stages of this disease and with colored lantern slides of trees in different parts of Maine, he commanded the closest attention of all his audience. What he had to say was brought home in a very special manner to the Camden people when he told of making a casual survey of the white pines about this town. Home after home on High Street, just to mention one section he spoke of, has had its pines infected.

(Extract from Portland, Me., Press Herald.)

Edit: Mr. Frost in a recent note informed us that Camden raised \$300 for blister rust control this year. He stated that work was to begin on May 10 with a 5-man crew.

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KOUBA CONDUCTS TRAINING SCHOOL FOR FOREMEN

State Leader Kouba of Wisconsin writes in letter of May 3, 1932:

"I am in the field conducting a training school for foremen. We will choose a foreman from each town that has considerable white pine in it, who will direct the men furnished by the various pine owners in the town. Shawano County is cooperating with us in blister rust control this year".

RIBES ERADICATION FIELD SEASON IN MASSACHUSETTS
STARTED ON MAY 2.

The active Ribes eradication field season in Massachusetts started today (May 2) with a field force reduced to 20 foremen as a result of a drastic reduction of 37% in our State appropriation. Present plans for the 1932 season call for the completion of initial control work in Worcester County, and the beginning of reeradication work in Berkshire, Essex, Hampden, Plymouth, and Worcester Counties. Starting on July 1, reeradication work for the season will be abandoned in the Essex and Worcester County districts in order that we may pursue further (we had hoped that it would be pursuit to completion) the project of eliminating Ribes nigrum from these two districts.

Field conditions this spring are backward in Massachusetts by ten days or two weeks. Although aecia have been reported at the usual early dates, there was very little development until about April 29 with the advent of one or two warm days. The leaves of R. hirtellum in the southeastern and Worcester districts at least had advanced sufficiently at that date to be readily recognized. By the date of this writing, conditions had warmed sufficiently to encourage Tent caterpillars, and larvae $\frac{3}{8}$ inches long were observed in some nests.

May 2, 1932.

C. C. Perry, Mass.

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REPLANTING OF CULTIVATED RIBES IN CONTROL AREAS

The replanting of cultivated Ribes within control areas has happened time and again. There are several reasons that may account for this. Probably the two chief reasons are that new owners have bought or rented farms or homes within the protected area and do not know of the danger of planting Ribes. Others have no doubt replanted bushes knowing full well that it is in direct violation of the law. Instances of the latter type are fortunately growing fewer all the while.

One case of replanting in the town of Lenox, Massachusetts, came to our attention during our black currant elimination work last season. On one estate in that town we found that 127 Ribes had been replanted since the initial control work was completed. The planting included 97 red currants, 27 Ribes nigrum and 3 gooseberries. This is the most outstanding case of replanting that has come to our notice in western Massachusetts. It has served to keep us on our toes more than ever watching for such violations.

March 23, 1932.

G. S. Doore, Mass.

PRESERVING AECIAL SPECIMENS

Specimens of white pine blister rust in the aecial stage, preserved in individual test tubes, are an attractive and efficient means of illustrating information regarding this disease. In the March issue of The Blister Rust News on page 50 appeared a formula for preserving such specimens. I am contributing the formula which I use in the hope that someone may use it to good purpose.

Take three ounces of granulated Bacto-gelatin, 30 ounces of distilled water and one ounce of 40 per cent solution of formaldehyde. The gelatin is placed in the water and allowed to hydrate for a few minutes and then is readily dissolved by heating. As soon as the gelatin is dissolved and the solution is clear remove from the stove or hot plate and add the formaldehyde. If the solution is cloudy before the formaldehyde is added a few drops of dilute acid will clear it. Pour the solution over the specimens while hot.

This solution forms a clear, solid medium when it cools and has a number of advantages over the liquids commonly used for this purpose. The most important is that once the specimen is canned none of the spores or blisters will be removed from their place.

Care must be taken to tightly cork the tubes as soon as the solution cools to prevent the entrance of liquifying bacteria and to exclude the air. If bacteria are present the gelatin will eventually partially revert to a liquid while if it is allowed to come in contact with the air it will shrink away from the glass.

A weaker solution than the one given will become cloudy while a stronger one hardens too rapidly for convenient use.

Until this year wax was used as a sealing agent but in hot weather this tends to melt and allow air to enter. I am now using plaster of paris and finish the job by using lacquer to make the tube air tight. My method is to fill the tube within about an inch of the top with gelatin, use a cork about a half inch thick and push into the tube until it is in contact with the gelatin. The plaster of paris is then put on top of the cork, leaving about a sixteenth of an inch of space which is filled with lacquer.

The specimens thus canned are suspended in a transparent medium which will not remove the spores from the blisters by washing, as is done by liquids. Also the coloring of the specimen is retained and is somewhat accentuated by the gelatin medium. This formula is the one used by most entomologists in preserving insect specimens.

April 12, 1932.

Kermit Miller, Washington.

NOTES FROM RHODE ISLAND

New State Memorial Forest

The first State forest demonstration area to be known as the George Washington Memorial Forest has been given to the State by public-spirited organizations and individuals. The State forest project was sponsored by the Edgewood Women's Club of Rhode Island to develop a greater interest in forestry. Approximately 140 acres of woodland have been given to the State already and an option has been taken on about ninety acres more in the vicinity. The State forest is in a section where there are hundreds of acres of woodland, and it may be possible to develop a much larger demonstration area later. The present State forest is adjacent to a State road for about one-half mile and when developed should make a good "show-window". The State's white pine blister rust control crew is now scouting the area for currants and gooseberries before white pine is planted. Two thousand white pine four-year transplants have already been ordered from a nursery growing white pine under disease-free conditions. These trees will be planted this month as a demonstration in re-foresting certain cutover land. Other developments are already taking place on the State forest and further efforts will be made from time to time experimenting with and demonstrating various phases of forestry practice.

R. I. Legislation

A law passed during the 1932 session of the General Assembly requires that before any person, firm or corporation owning standing trees shall cut or saw such trees for other than domestic use, said person, firm or corporation shall annually register with the Bureau of Forestry. In addition to this, sawmill operators shall report the location of all sawmills, before operating, to the town or city forest warden of the town or city in which the sawmills are to be operated. This registration act will allow the Bureau of Forestry to have a record of all local wood cutters so that more definite information can be obtained each year on the annual cut of wood products. Such information will be of great value in blister rust control work because the State will have more data on the value and importance of our white pine in comparison with other woods. Since sawmill operators are to notify local forest wardens before operating in the different communities the act serves in part as a forest fire protection measure.

Infection Found on Two Ornamental White Pines

On May 2, Agent A. C. White and members of the State's blister rust control crew found blister rust infections on two ornamental white pine trees. They discovered these infections in scouting for European black currants on the property of Claude C. Ball, 1396 Narragansett Boulevard, Cranston, R. I. The men found two limb cankers on two white pines. These trees were infected about 1920 while growing in a local nursery. On one tree the infection has already spread from a limb to the trunk. On the other tree the infected limb has been removed to save the white pine. A more thorough study of the property later will give our office

accurate information. Cultivated currants and gooseberries were found on the property within a radius of twenty-five feet. Currants and gooseberries have been removed from near the local nursery concerned since Mr. Ball purchased these trees and planted them in Cranston a few years ago. The finding of these infections indicates the need for nursery sanitation as well as blister rust control around ornamental white pines on estates.

May 7, 1932.

A. W. Hurford, R. I.

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PHENOLOGICAL DATA

Dr. R. R. Hirt reports that on April 27th at Warrensburg, New York, aecia were just breaking through the bark but had not started to cast spores. He writes, "I have never seen rodent injury on cankers as bad as it is this year. Practically every canker that I examined on forest trees was severely gnawed. This is sure to affect the number of aeciospores that normally would have been cast and incidentally the initial infection of Ribes."

* * * * *

Mr. E. L. Joy, Junior Forester of the Western Office, writes in letter of April 12th as follows:

"Putnam and I were on the (Newman Lake) plot yesterday and found the aecia just starting to push through the bark. A week or ten days of warm weather like we are now having is all that is needed to start the 1932 crop of aeciospores. Looks like there will be a bumper crop."

* * * * *

State Leader J. E. Riley of Connecticut in letter of April 22, 1932, writes:

"Ribes cynosbati in leaf April 21, two weeks after cultivated gooseberry was found in leaf. No currants leaved out yet. Cankers are in fruit. Looks like an early spring."

* * * * *

Agent J. M. White of Maine states in letter of April 29:

"I noted aecia breaking through on the pine in this vicinity on the 18th of this month. The leaves on Ribes hirtellum started on the 23rd of this month."

* * * * *

Records of Early Aecia in Massachusetts

April 14 - Town of Essex (Essex County) by Agent W. T. Roop.

April 18 - Town of Boylston (Worcester County) by Agent Wm. Clave.

RIBES ERADICATION AROUND FOREST SERVICE NURSERY AT PARSONS, W. VA.

The work of ridding the environs of the Forest Service Nursery at Parsons, West Virginia, of all the Ribes, both wild and cultivated was begun at noon May 2, and finished May 6, 44 hours labor being spent by the writer and his assistant. May 2 is from 10 days to three weeks later than the usual time of beginning operations, but it was just right this year from the standpoint of Ribes leafing. Even with this late start, the temperature fell to 32° on the night of May 2 and held back the leafing of the Ribes at the higher elevations on Turkey Knob.

An additional area of 10 acres northeast of the Nursery beyond the top of Turkey Knob was added to the protective zone on account of a high concentration of Ribes found there. This area lies outside of the 1500 foot limit but within one-half mile of the Nursery. In this addition 1,136 pasture gooseberries (*R. cynosbati*) were found; 591 being found on one acre in a moist rocky swale. East of the Nursery and about one-half mile distant up the valley of the Blackwater River, one acre was added to the protective zone since this area had been changed by clear cutting of the trees to an open pasture leaving the Ribes in a very exposed situation. Seventy-two bushes were found and destroyed on this area.

In the protective area of 545 acres which includes the Nursery area, a total of 1,879 Ribes bushes were destroyed this spring. If only the area which was reworked this year is considered, the number of bushes pulled thereon, 671 in all, amounts to but 1.25 bushes per acre. Of these 671 bushes, over 220 were quite small, being 6 inches or under.

The question of whether Ribes are diminishing on the area is answered in the affirmative by the following figures:

Number of bushes pulled 1928 to 1931, inclusive,	4967
Number of bushes pulled on this area in 1932	
excluding 1208 bushes on 1932 extension of area.	671

The number of blocks with no Ribes found during the year increased from 34 in 1931 to 42 in 1932. Of the 25 blocks in which Ribes were found this year 13 had less than 10 bushes in the block.

The wooded slopes of Turkey Knob and the steep slopes of the Blackwater River directly across from the Nursery, together with the upland pastures near Hambleton still continue to produce the most Ribes.

Roy G. Pierce.

NEWS FROM THE BERKSHIRES, MASSACHUSETTS

First Aeciospores

The first aeciospores being liberated to the winds in southern Berkshire County were noted April 30th in Sheffield, Massachusetts. Since a rather close watch has been kept over several infected trees in sheltered locations, we feel fairly sure that the breaking open of the blisters on the last day of the month indicates a late spring in this section of the country.

A Late Spring

In southern Berkshire County constant checking of wild Ribes during the first week of May indicates that actual eradication work should not start until May 9th or the 10th. We anticipated an early spring and had every right to expect an early start in the field but things just did not warm up according to our plan of work. However, we are all set, cooperators signed up, foremen limbered up, and ready to go the second week in May.

Test Tube Specimens

Every now and then a request comes in for samples of infected pine preserved in test tubes. The last request of this nature nearly depleted our reserve supply. However, through the kindness of Mr. Pierce we have received three dozen tubes, practically all of which are now filled with selected specimens, preserved, and reserved for educational purposes as occasion arises.

May 6, 1932.

G. Stanley Doore, Mass.

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SUPERINTENDENTS OF NEW YORK PARKS COOPERATE IN BLISTER RUST CONTROL

In addition to New York State having many well equipped public camp sites, it has a number of wonderful parks, ranging from 300 acres up to approximately 60,000 acres, through the central and southwestern parts which are open to the public. All of these parks have at least a few open fireplaces and suitable places to pitch tents, etc., and some of them have a few bungalows which are for rent at a very reasonable figure. They also have many other interesting features such as historical spots which are a drawing card for many people. One park, for example, under the direction of the Finger Lake Park Commission, has a waterfall which has the longest direct drop of any east of the Rockies.

Thousands of forest trees, many of them white pine, have been planted on these parks. This past winter the superintendent of each park was interviewed in regard to blister rust control. In every case they were very willing to cooperate and this season we expect to do the job. We feel that we are better able to take care of the blister rust work on these parks this year than ever before due to the fact that there are thousands of acres of private work to be done in these regions, as well as many State Hewitt areas.

N. H. Harpp, New York.

COMPARATIVE GROWTH RATES OF FIVE PINE SPECIES IN WOOSTER FOREST

A Comparison is Made Between White Pine and 4 Yellow Pines.

There are located in the Wooster Forest 41 species and varieties of pines, several of which have proved to be of importance for reforestation work in Ohio. Five of these, red pine (Pinus resinosa Ait.), white pine (Pinus strobus L.), Scotch pine (Pinus sylvestris L.), western yellow pine (Pinus ponderosa Dougl.), and Corsican pine (Pinus austriaca var. calabrica Schneid.), have been planted extensively in this State, especially the first three, and have adapted themselves well to old field conditions.

At Wooster, under conditions which are typical of many old field planting sites in Ohio, the growth rate has been good, although not as high as that found in other plantings in this State.

Table 79 shows the growth rates of these five species in the Wooster Forest. It should be noted in this table that all plots shown are not of the same age. The age shown is the number of years which have passed since the planting took place. The planting stock was from 4 to 6 years old in all cases. All plots shown in this table have a uniform spacing of 6 x 6 feet; and they are all composed of a single species, with the exception of one plot which is composed of red and white pines mixed alternately in the row in equal number.

Table 79. - Comparative Growth Rate of Five Pine Species.

	White pine	Red pine	Scotch pine	Western yellow pine	Corsican pine	Red and White pine pine
Age - years . . .	18	17	18	17	15	15 15
Av. height - ft.	30.22	21.47	31.69	19.30	31.27	24.70 25.50
Av. diameter - in.	5.47	3.90	5.17	3.77	4.45	4.69 4.09
Trees per acre	608	1180	840	1129	1180	572 349
Volume per acre - cu. ft.	1595	1051	2070	902	2068	870 436
Av. annual height growth - ft.	1.68	1.26	1.75	1.13	2.08	1.65 1.70
Av. annual diame- ter growth - in.	0.31	0.23	0.29	0.22	0.30	0.31 0.27

The Corsican pine has shown the most rapid annual height growth, but this high growth rate is partially offset by its more restricted soil requirements. Scotch pine also shows a high growth rate. Red pine, although having a somewhat lower growth rate than these former species, has other qualities, such as hardiness, adaptability to a wide variety of soils, and good growth form, which makes it a very desirable tree for reforestation purposes in Ohio. As the red and white pine plot indicates, the red

pine seems to thrive better in mixture with certain species than in pure stands; especially is this true when in mixture with Norway spruce.

These data are on stands which are as yet comparatively young, and the results should not be considered as applicable to older stands until later data are secured.

(Extract from Bulletin 497, Fiftieth Annual Report, Ohio Agric. Exper. Sta., Wooster, Ohio, 1930-1931, p.189-190.)

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AMERICAN BLACK CURRANTS AND TWO INFECTED WHITE PINES DISCOVERED
WHEN PROTECTIVE ZONE IS CREATED AROUND NEW JERSEY NURSERY.

Apropos of the bicentennial celebration of Washington's birth it might be of interest to blister rust men and others to know that in the course of creating a nursery protective zone about the State nursery at Washington's Crossing, New Jersey, American black currants, Ribes americanum, were found growing rather abundantly along a stream which at one point is within fifty feet of the continental lane over which Washington marched his troops preceding the historical battle of Trenton. It is also interesting to know that we have located two trees in the aecial stage of blister rust in the Pennsylvania portion of the Washington Crossing State Park. I have informed Mr. Fatzinger of their presence and asked his cooperation with the removal of same and the tracing of the origin of these trees inasmuch as they were planted in 1928 and are about seven years old. None of these conditions were anticipated when we started the project of creating a protective stage about the nursery.

Paul B. Mott, New Jersey.

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STUDIES OF RIBES ECOLOGY

Mr. Fivaz's article on "Studies of Ribes Ecology", which was delivered as a paper before the 13th Annual Blister Rust Conference in Boston, November 28-29, 1927, has again been mimeographed. Several hundred copies of this publication have been run off and are now available at the Washington Office for the use of the agents, blister rust foremen, and other workers. If you desire one or more copies drop a postal card to the Office requesting _____ copies of Fivaz's "Studies of Ribes Ecology".

R.G.P.

AGENT BROCKWAY REPORTS ON UNEMPLOYMENT PROJECT

On February 29, by special request, I made an inspection of a woodlot recently acquired by the Old Colony Sportsmen's Association in the town of Pembroke, Plymouth County, Massachusetts. Upon investigation I found that the lot had been covered by our field men during the 1931 season, and our records show that no Ribes were found on the lot or in the immediate vicinity. My inspection of the area in February failed to disclose any pine infection.

The property in question was of the white pine, pitch pine, white and red oak type, which is rather common in this section. The gypsy moths had killed considerable of the oak and pine, and all the trees were heavily infested with this year's gypsy moth egg clusters. Immediately upon acquisition of the lot, the association voted to improve the stand by the removal of the moth infested oaks.

An offer was made to the unemployed of the town to the effect that they could have whatever wood there was on the lot in return for service in cutting the trees, mowing off the brush, and burning the slash. Each man was assigned a definite strip in which to work. This was not much of an offer for the reason that most of the trees were small in size and would yield very little wood, but men were turned away daily. In other words, they were eager for the opportunity to get enough wood for their home use in lieu of buying other fuel.

There is apparently no blister rust problem connected with this project, but it will be worth while to watch the area to determine how the released pines will re-act. It will also be of interest to ascertain whether or not the white pine weevil and the Pales weevil will be a factor. The pines were doomed because they were more or less overtopped by the moth infested oaks, and another season of feeding would probably have ruined them completely.

April 28, 1932.

E. M. Brockway, Mass.

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FORESTRY STUDENTS AT MICHIGAN STATE COLLEGE TO BE SHOWN OVER THE
BLISTER RUST DEMONSTRATION AREAS IN THE UPPER PENINSULA

During a recent interview with Mr. Bowman of the Forestry Department of the Michigan State College, an itinerary was worked out to show the forestry students of Michigan State College, who are attending summer school in the Upper Peninsula, through certain blister rust demonstration areas. The students will also be shown the methods of blister rust control under field conditions.

R. I. Thompson, Mich.

WHITE PINE FOR PULPWOOD*

White pine (Pinus strobus) has a long and comparatively thin fiber. Hence this pine offered the possibility, when pulped by the soda process or some of its modifications, of serving not only as a substitute for the hardwood soda pulp used in book, magazine, envelope, and similar papers but also of replacing a goodly portion of the sulphite fiber common in such furnishes. The Forest Products Laboratory has in the past given little attention to the pulping qualities of white pine because the value of the wood for lumber has precluded its commercial use in paper. Much of the coming second-growth white pine in New England, however, is sufficiently knotty and stunted to lose some of its desirability for lumber and hence to warrant investigation of its pulping qualities, partly because of the possibility of thus extending our supply of pulp wood; these statements assume yields per digester equal to those now being obtained with the species ordinarily selected. ****.

In December, 1929, a little more than a cord of rough, second-growth, white-pine pulp wood, cut in New England, was received at the Forest Products Laboratory in the form of 4-foot bolts. The laboratory records designated the material as Shipment No. 1330. The entire shipment appeared to be green and to have been freshly cut. The wood had been selected as representative of the second-growth material in its region, but unfortunately detailed information regarding the characteristics of the region were lacking." ****.

Table 1

Physical Characteristics of the White Pine Pulp Wood Examined.

Number of pieces in cord, unbarked	65	1
Weight of cord, unbarked	4289 lbs.	
Weight of cord, barked, as received	3814 "	
Solid wood content by water displacement	80.1 cu. ft.	
Average weight per cubic foot (weight oven-dry, volume green)..	18.9 lbs.	
Average weight per cubic foot (weight oven-dry, volume oven-dry)	21.1 "	
Maximum diameter of barked logs	11.3 inches	
Minimum diameter of barked logs	4.5 "	
Average diameter of barked logs	7.45 "	
Average diameter of discs	6.96 "	
Average age (total annual growth rings)	22.7 years	
Growth rate (rings per inch)	6.55 rings	
Ratio of heartwood to total	42.9 per ct.	

* Extract from "Chemistry of Alkaline Wood Pulp Processes. III. Pulping of White Pine by the Soda and the Soda-Sulphur Processes." by Mark W. Bray, J. Stanley Martin, and L. A. Carpenter. From Technical Association Papers of the Pulp and Paper Industry. Series 14, No. 1, May 1931, p. 214-219.

Conclusions

The physical evaluation data showed rather low weights per cubic foot for white pine wood. Hence the yield of pulp per digester charge would be low in comparison with more dense woods such as spruce, aspen, birch, maple, northern jack pine, and the several southern yellow pines.

The chemical data, on the other hand, indicated the possibility of yields of equal weight in comparison with spruce wood, when both species are pulped under identical conditions.

Pulping Studies Results

The results of the pulping studies have shown that a bleached pulp can be made from second-growth white pine by a modification of the soda-process, which involves the use of elemental sulphur. The bleached white pine pulp produced by this method appears to be a suitable substitute for the aspen, birch, and maple soda pulp common in the manufacture of book and like grades of paper. In addition the bleached white pine pulp, being stronger than the commercial hardwood soda pulp tested, should allow of some reduction in the percentage of spruce sulphite pulp in the production of book papers.

Effect of Sulphur-Soda Process

The pulping data indicate that pulps of highest yield and lowest bleach requirements are obtained by the sulphur-soda process upon employing a cooking liquor containing relatively higher ratios of chemical to wood charged than those now common in commercial practice, although at a lower concentration of chemical in the cooking liquor.

Edit: A short summary of this paper by Messrs. Bray, et al, from the Paper Trade Journal of September 17, 1931, was run in the Blister Rust News for November, 1931.

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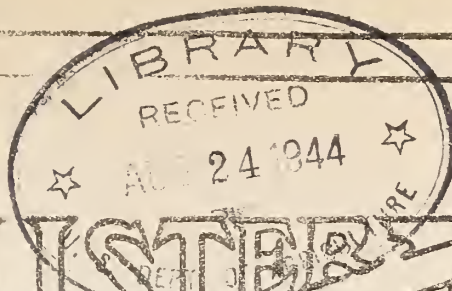
NOT A SINGLE PLANT OF RIBES NIGRUM

Field work to determine the location of any plants of Ribes nigrum in the town of Barnstable on Cape Cod was completed recently. Not a single plant of this species of Ribes could be found in our travels throughout this town of 40,155 acres in area. Inspections of 3,124 individual properties were made during the course of our canvass. On 62 of these locations other Ribes were under cultivation. These latter plantings contained 689 red currants, 154 gooseberries, and 8 flowering currants. White pine has been planted on many of the summer estates in the town but altogether we were able to record only 420 acres upon which white pine is now growing. It is quite apparent that we shall never be burdened with a serious blister rust control problem in this town. The population of Barnstable is recorded in the 1930 United States Census as 7,271, although the summer population amounts to many times this figure.

April 27, 1932.

E. M. Brockway, Mass.





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June, 1932.

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BUREAU of PLANT INDUSTRY
DIVISION of BLISTER RUST CONTROL



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T H E B L I S T E R R U S T N E W S

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June, 1932

FEW RIBES FOUND ON REEXAMINATION OF PINE PLANTATIONS

During the last few months considerable time has been spent in this district in inspecting white pine plantations. The plantings vary in age from those set out in 1909 to those planted this spring and due to the fact that most of the older areas have had initial eradication performed on them, they furnish some interesting data on reeradication.

Practically all plantings were made on lands which have been under cultivation, that is in abandoned fields, and from observations made under such conditions I have found such areas free of Ribes. However, along old walls and fence lines which have become lined with the usual brush there are usually plenty of Ribes bushes. There seems to be very little Ribes comeback on these areas, either in the abandoned fields or those planted to forest trees. Along the fence rows where the bushes have been taken out there is little if any Ribes "reseeding" in the vicinity which I have referred to, possibly due to the soil which is a shaly clay and which dries very hard during the summer months. This may also account for the lack of Ribes in the more open fields.

In many cases no infections could be found other than those prior to the time of eradication. On one plantation protected in 1924 neither Ribes nor rust could be located.

The conditions described do not exist in all parts of the district but seem confined to a strip approximately paralleling the Hudson within the towns of North and East Greenbush and the town of Schodack.

Eradication work was started in this district May 10th and in spite of the depression we expect to protect a large part of the pine in this section this season.

H. J. McCasland, New York.

BLISTER RUST CONTROL ACTIVITIES IN MICHIGAN

The blister rust force in Michigan now consists of nine men, two regular agents and seven temporary. The temporary men went to work on May 16th, five of them as foremen of eradication crews and two on black currant eradication. Each of these seven men has had at least two years of blister rust experience and we feel very fortunate to be able to get these trained men year after year. The work for these men was lined up in advance by the regular agents so that no time was lost in getting started.

Four of the men are working in the lower Peninsula under the supervision of Agent Thompson and three in the Upper Peninsula under Agent Kroeber. The work in lower Michigan at the present time consists of wild Ribes eradication to protect the pine in parks, resort localities and pine plantings. Later in the season one of the men will carry on black currant eradication and the other three will continue as foremen of crews.

In the northern peninsula one man is eradicating black currants in Delta County, one is supervising an eradication crew to protect the trees in a city park in Menominee County and the third has just completed a control project at the State prison at Marquette. For this job trustees at the prison made up the crew. Mr. White, the foreman, is now engaged in working a five-man Ribes crew on private property in Marquette County.

Phenological Data

Leaves on Ribes in the Upper Peninsula began to appear about May 4th, and as usual skunk currants and gooseberries came into leaf first. The first aecial blisters on pine were discovered in Marquette County about May 10th.

Blister Rust Agents Cooperate in Fire Fighting

Working in cooperation with the Michigan Department of Conservation, Forest Fire Division, all blister rust agents will carry a regulation back pump of five gallons capacity and a round nosed shovel in their cars to suppress any fires they may chance upon during the course of their work. My pump has paid for the trouble of carrying it already when I used it to extinguish a fire in one of our cooperators cars. Without the pump at hand the car would likely have been destroyed. The pumps and shovels are furnished by the Conservation Department.

Working with School Children

Tree planting on Upper Peninsula school forests was carried on on a larger scale than any previous year. Sometime before, during, or after the planting I gave a talk on blister rust. Helping the schools get their forests started gives the agent an excellent opportunity to become acquainted with the students as well as each planting. Whenever possible

we look over the forest site and recommend whether or not white pine should be planted on that particular site. Later we take out groups of boys and actually do eradication work where it is needed. A similar service is extended to individuals who plant trees. Education is one of the chief points in blister rust control and the new plantings offer the most fertile fields for disseminating the information.

May 25, 1932.

John K. Kroeber, Mich.

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400 SPORTSMEN ADVISED REGARDING BLISTER RUST CONTROL

Gt. Barrington, Massachusetts, May 20, 1932.

There were more than 400 sportsmen from various cities and towns in Berkshire County and surrounding territory crowded into the town hall last night for the 17th annual banquet of the Great Barrington Fish and Game Association. The event started at 7:00 o'clock, and the distribution of prizes was still under way at midnight. Governor Joseph B. Ely was scheduled to speak but the pressure of State business prevented his being present.

As each man entered the door he was given a ticket which was later drawn out of a box for the prizes. The articles were gifts of local merchants and manufacturers. In spite of the depression the prizes were as plentiful as in former years, and the values ranged from 25¢ to \$15.00. Several local merchants estimated the wholesale cost of the prizes at \$1500. In addition to the prize tickets, each attendant received a large paper hand bag containing sample copies of the leading sportsmen's magazines, and scores of other small articles of interest to the sportsman. Through the courtesy of the management, we obtained permission to place in each bag a copy of our revised blister rust circular (Misc. Publication #22). As far as we know this is a unique method of distributing educational material. Doubtless everyone present had an interest in the conservation of forest growth as a direct protection to the fish and game throughout the county. We noticed in the audience during the evening, many former cooperators in blister rust control work.

G. Stanley Doore, Mass.

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LATE SNOWS IN THE BERKSHIRES

Berkshire County had the greatest snowfall of any county in Massachusetts during the winter of 1931-32, with a fall of 73 inches, according to a report of snow clearance issued by the State Department of Public Works. The local county office at Pittsfield recorded 9.4 inches in excess of the average for the State as a whole. This is one reason why our active eradication of wild Ribes could not get under way until the second week in May. It may also account for our inability to find ascospores being liberated until from one to three weeks later than in the other sections of the State.

June 1, 1932.

G. S. Doore, Massachusetts.

BLISTER RUST CONTROL SEASON OPENS IN ST. LAWRENCE COUNTY, N. Y.

Although foliage was rather late in appearing this year in St. Lawrence County, New York, blister rust control started in earnest the week of May 9th. Four assistants are devoting their entire time to black currant work and the elimination of Ribes from natural white pine stands and plantations. Work is being continued in much the same manner as in 1931, i.e. an assistant is assigned a town in which to do the Ribes nigrum elimination work as well as the protection of natural white pine stands and plantations. Twelve towns were completed in the county in 1931, both the black currant and the wild Ribes eradication, except for a few pine areas where cooperation is expected in 1932. Twenty towns are yet to be worked in this, the largest county of New York State. However, due to the scarcity of pine in some of the remaining towns, it is thought possible that the entire county may be completed in 1932, as far as initial eradication and black currant elimination work is concerned.

A new agent is in charge in St. Lawrence County and he is striving and sincerely hoping to continue the same high quality work (with the same degree of efficiency), initiated by his predecessor, Mr. Walter F. Pratt.

May 24, 1932.

Charles B. Kresge, N. Y.

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BLISTER RUST WORK UNDER WAY IN MAINE

Work in the control of the white pine blister rust is getting under way this week, according to W. O. Frost of the United States Department of Agriculture, who is cooperating with the Maine Forestry Service in combatting this menace to one of the State's great resources. The control measures are being carried on in the lower twelve counties of Maine in those towns that appropriated funds at their recent town meetings. It appears that the blister rust fighters will be able to accomplish as much and perhaps more than they did last year, as about the same amount of money has been raised for the 1932 campaign as in past years. The actual control work is being done by crews of five and six men working under the supervision of various district agents. The fruiting stage of the disease with its brilliant orange-colored fruiting bodies on the bark of infected trees, is already much in evidence in some areas. Careful control has definitely checked this tree plague. One of the most important steps is the removal of all cultivated and wild species of gooseberry and currant bushes as the blister rust spreads by means of these plants.

Extract from the Kennebec (Me.) Journal for May 11, 1932.

WHITE PINE, WESTERN WHITE PINE AND SUGAR PINE
INFECTED AT THE ARNOLD ARBORETUM

During December, 1931, Mr. Hodgkins and I spent two days inspecting the five-leaved pines growing in the Arnold Arboretum in Jamaica Plain, a suburb of Boston. At that time a number of flags were noted, but in many cases these flags proved upon further investigation by the aid of an extension ladder to be the results of the activities of Phoma. We did find, however, scattered blister rust infections, two on P. strobus; one on P. monticola; and one on P. lambertiana. A trunk canker on P. lambertiana had become so completely caked over with pitch that it was not possible at the time to determine with absolute certainty whether it was a blister rust canker or the work of another fungus. In order to make positive identification if possible, I visited the area on May 7, 1932, and found a lone aecia developing in the canker. This apparently confirms the identification and represents our first definite record of infection in the city of Boston as well as what is probably the first infection on P. lambertiana in Massachusetts. The branch infections on P. strobus dated back to 1922 and 1925. It was not possible to determine the age of the trunk canker on P. lambertiana because of the condition of the tree. Our guess would be that the canker originated not later than 1917 and possibly some years earlier than that.

An effort has been made to procure a more definite record of the history of the specimen of P. lambertiana, but the Arboretum records only show that the tree was grown from seed collected in California and received at the Arboretum on December 12, 1872. Professor Jack, Dendrologist, is of the opinion that the tree was set in its present location about 1887, but that record does not definitely establish the age of the tree.

June 8, 1932.

E. M. Brockway, Massachusetts.

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HURFORD GIVES RADIO TALK

Mr. A. W. Hurford, Rhode Island State Leader, gave a radio talk on blister rust control in Rhode Island on May 31st over the Outlet Company radio station in Providence, WJAR. While Mr. Hurford in his talk stressed particularly the necessity of getting rid of the European black currants, he also emphasized the part which many cultivated currants or gooseberries played in spreading the blister rust to nearby pines. Scouting for and eradication of European black currants began in 1928. Since that time 14,767 black currants found in 1,486 plantings located in 38 towns and cities have been destroyed. Over 81,714 properties have been inspected in the search for these bushes. Only the city of Providence and part of the city of Cranston remain to be scouted for Ribes nigrum.

On June 11th Mr. Hurford wrote that he had already had two communications from owners of cultivated Ribes who had heard his radio talk.

BLISTER RUST IN WARREN COUNTY, NEW YORK

Control Work Started

Because of the delayed development of the Ribes leaves eradication work was not started in District #6, Warren County, New York, until May 10th. There are now (May 17) seven foremen engaged in eradication work and one is expected to start about June 1.

Aecial Development

The first aecia in Warren County was discovered on May 5th in the southern part of the county, and I presume that it had been fruiting a few days previously.

Squirrels Feeding on Cankers

This brings up the matter of squirrel damage again. I have observed that the outer areas of normal cankers do not fruit as early as the inner areas; also that rodents confine their activity largely to the inner areas of cankers, eating away that section of the canker which would normally fruit earlier if unmolested. This undoubtedly accounts for the lateness of fruiting of many cankers in this District. I have also noticed that many cankers do not fruit very heavily the spring following damage by squirrels.

Mr. W. S. Codman reported to me that he had seen a squirrel feeding on a blister rust canker while he was working at Gypsy Moth Control in Washington County, New York, last February.

E. G. Woodward, New York

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BLISTER RUST CONTROL IN THE SOUTHERN PENINSULA OF MICHIGAN

We started in Monday using four men in the Lower Peninsula. At the present time one of the men is working with a crew protecting the Pinetum at Michigan State College, one is working with a crew protecting about a forty acre plantation, white pine mixed with other species. This planting is part of the Kellogg Reforestation Tract located near Battle Creek and under the supervision of the Michigan State College. The other man on wild Ribes eradication work is supervising a crew at work protecting a beautiful stand of white pine in the vicinity of Baldwin Lake, Greenville, Michigan. At this place we hope to do work for the Cemetery Board, City Park Commission, Country Golf Club and private owners. These places all join on the lake and make a nice proposition. The fourth man is on black currant work in Charlevoix County. He is planning on doing educational work with the schools while they are still in session.

I have just finished looking at white pine plantings of approximately 300 acres on the Huron National Forest. Part of this site I looked at before the plantings were started. So far the area is free of Ribes. We expect to continue this cooperation with the U. S. Forest Service. I also had a talk with Superintendent Fenger about reeradication of Ribes about the Federal Nursery.

May 23, 1932.

R. I. Thompson, Michigan.

SPRING OBSERVATIONS IN A FEW MASSACHUSETTS INFECTION AREAS

There seems to have been practically a normal development of aecia this spring, at least in areas where the cankers are not too old. In visiting a few of the most seriously infected pine stands in eastern Massachusetts, I have been more impressed than ever with the fact that with the absence of young cankers as a result of the elimination of Ribes, the old cankers in these particular areas are producing a reduced number of aeciospores each year.

Such is particularly true in areas like the Crane Plot in Ipswich. On this area the damage has just about reached its maximum; most of the trees with trunk infections have died, and those that still remain produce very few aecia. I was interested to note this spring the first recurring Ribes (R. hirtellum) in this area. The initial Ribes eradication work was in progress in 1923. At the Atkinson Common in Newburyport, damage has also reached its maximum, and aeciospore production has nearly ceased. In a casual count of trunk cankers in one section of this park area, only one fruiting canker in twenty-nine could be found. Only one fruiting branch canker was noted in the casual examination of all the pines in this area. This branch canker was by no means of recent origin, occurring on 1915 wood. This particular infection area was the scene of blister rust tree surgery operations back in 1917 and 1918. The records of such work in 1917 are not available, but it appears that during the 1918 field season "332 infected twigs of which 2/3 were fruiting, were cut from 740 trees. Last year (1917) under the State Forester's direction, the infections then visible were removed." It is unfortunate in a way that the studies in this area could not have been followed up, because it is quite apparent that this tree surgery work prevented the development of many trunk cankers. It will be of interest to know that the initial Ribes eradication in this area was carried on in 1920 and that the area was rechecked in 1924.

In an area in Ashburnham (Wallace area) the effect of rodent feeding was very noticeable. Trunk cankers are quite general throughout this area, but rodents fed so extensively during the past winter that it was almost impossible to find cankers with aecia this spring.

May 19, 1932.

C. C. Perry, Massachusetts.

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HURFORD OF RHODE ISLAND GIVES LANTERN SLIDE LECTURES

On Rhode Island Arbor Day, Friday, May 13th, Mr. A. W. Hurford, State Leader in charge of blister rust control in Rhode Island, gave two twenty-minute lantern slide talks on blister rust control and relative forestry work at the Providence Commercial High School. These talks were given to student groups of about 900 each. The hall was not large enough to accommodate the entire 1,800 students at one time. Both the students and their teachers appeared much interested in the work. This is the largest number of people to whom the State Leader has talked and showed lantern slides in any one day.

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BLISTER RUST INFECTION IN DULUTH, MINNESOTA

The first blister rust infection found in Duluth was in 1922 on Ribes nigrum. In 1925 five infected pine were found in the Hartley planting on Woodland Avenue. (Planting made in 1914.) This infection was three years old. A table showing the condition of the black currants in Duluth and of the infected pines in a study plot at the Hartley Plantation follows:

Year	European Black Currants, <u>Ribes nigrum</u>				White pine, <u>Pinus strobus</u>
	No. Bushes Not Infected	No. Bushes Infected	Total No. Bushes	% Bushes Infected	No. Trees Infected in Hartley Plantations*
1922		Rust Present	?	?	
1925	771	185	956	19.3	5
1927	1,060	245	1,305	18.8	8
1928	225	467	692	67.5	76
1929	476	796	1,272	62.5	Over 100

* A study plot of about 1/8 acre in size containing 108 white pines was laid out in 1927, and the figures from 1927 to 1929, inclusive, were taken from this plot.

The gathering of data on pine infection plots was discontinued after 1929. Late in November in 1929 "flags" (dead branches) began to appear in the Hartley plantation, and dead branches and tops have been increasing rapidly in number since that time.

In 1931, Mr. Rutford, County Agent of St. Louis County, reported pine infection near Five Corners in T. 50 N., R. 15 W. Inspection showed infection to be present on a number of planted white pine. Sixty-three cankers were counted on one six-foot tree. A large old R. nigrum planting was present within 100-150 feet of the infected trees. No infection was noticeable on the few native trees present in this vicinity. Infection was found on a stand of pasture pine 20-30 years of age in SE $\frac{1}{4}$ SE $\frac{1}{4}$ S28, T. 51, N., R. 15 W. The stand itself was practically Ribes free, but four infected R. nigrum were found in a garden within 1/8 of a mile. In 1932 additional infection was noticeable in this stand.

Several infected pine were found in the vicinity of Woodland Avenue in 1930 and 1931. Inspections were made during these two years only as requested by ornamental pine owners.

Late in the summer of 1931 we decided to use the Hartley planting as a damage demonstration. Temporary signs were erected and the infected trees along a path through the plantation tagged.

In February 1932 Ranger Fritzen and Ritter found infection in Chester Park. Only one infected pine in the park was found at this time. Several trees growing over a planting of cultivated Ribes on a residential lot adjacent to the park were found to be infected. On April 26th Patrolman Shipp and Ritter found three more infections in Chester Park. The ends of two of the infected branches (infection on 1928 wood) had been killed by secondary fungi. One infection on 1926 wood had produced aecia in 1931.

One infection on 1926 wood which had produced aecia in 1930 and 1931 was found in the western part of Congdon Park. Infection was found to be quite general between Woodland and Chester and Congdon Parks. Secondary fungi had killed the end of the branch and all the canker except a small advancing margin of blister rust mycelium on most of the infections observed.

No pine infection had been observed previous to 1932 in the vicinity of Duluth Heights though the Ribes nigrum in this area was heavily infected in 1929. Inspection of the few pines growing near the Heights revealed several infections. One was on 1922 wood and had produced aecia several times. Infection was also found in a scattered stand of pine about 3/4 of a mile west of the Heights.

L. B. Ritter, Minn.

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THOMPSON GETS THE CREDIT

With reference to the article which appeared on the bottom of page 81 of the April issue of the Blister Rust News concerning a paragraph on blister rust which the Michigan State College Forestry Department has incorporated in its Price List of Forest Planting Stock, I wish to add a few words. Whoever sent you this information did not give credit where credit is due. For several years we in Michigan have been trying to get something like this across and at last through the good work and persistent effort of Agent R. I. Thompson the deed has been accomplished. I feel that having an item on blister rust in a planting price list is the best possible way of getting "Blister Rust" across to the man who should be most vitally interested in it, - the man who is going to plant white pine. While all previous information concerning the disease may have become vague or slipped the prospective pine planter's mind the subject will come back to him at a time when it is most needed and when it will do the most good. Michigan has a much bigger acreage of white pine planting site than it has of land actually supporting white pine growth at the present time, so the real work of blister rust control in this State concerns the pine forests of the future. Mr. Thompson's stroke of good work will undoubtedly have a greater and more far reaching effect than any other single educational effort we may undertake this year. For this season I wish to compliment him on his good work and would like to see that the readers of "The Blister Rust News" are informed of a good piece of work well done so that they may give credit where credit is due.

BLISTER BLISTER RUST CONTROL WORK AGAIN UNDER WAY IN PLYMOUTH
COUNTY, MASSACHUSETTS.

White Pine Areas in Several Towns Will Be Reexamined This Summer.

In connection with the campaign to prevent further damage to white pines in Plymouth County by the fungous disease, the blister rust, reexamination of lands in the towns of Duxbury, Marion, Marshfield, Mattapoisett, Middleboro, and Rochester, will start May 2. The necessity for such reexamination work was forcefully demonstrated last season during control work in the towns of Bridgewater, East Bridgewater, Lakeville, North Middleboro, Norwell, and Pembroke. It was found that seedling bushes of currant and gooseberry that were small and inconspicuous at the time of the original control work, had reached such a size that they had become a menace to nearby white pines. It is imperative that all such bushes be uprooted now if further damage is to be prevented.

Trained inspectors employed by the Massachusetts Department of Agriculture, will examine all the white pine areas in the towns and determine whether or not wild currant or gooseberry bushes are present. If these bushes are only found in scattering numbers, the field men will eradicate them without expense to the owner. If, however, after a thorough examination, it is found that the wild bushes are numerous, the owner will be requested to cooperate to the extent of matching his time with that of the State inspector or furnishing other labor to do so. In Plymouth County, with the exception of a few towns, these wild currant and gooseberry bushes are not particularly abundant, and, therefore, the expense to an individual owner in any case, has not been large. ****.

Extract from the Plymouth County Farmer for May 15, 1932.

Edit: The above item was received from Agent E. M. Brockway, who probably wrote it.

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SQUIRRELS FEEDING ON BLISTER RUST CANKERS

When blister rust invaded the country to attack white pine trees the squirrels found a substitute for nuts in the blister rust cankers on the pine. Squirrel-eaten cankers were pointed out to visitors to the blister rust damage demonstration in the Hartley plantation on Woodland Avenue by L. B. Ritter, State blister rust control leader.

Mr. Ritter explained that apparently the tissues of the parasitic plant that is the cause of the blister rust disease are high in starch and sugar, and that in areas where blister rust is prevalent the squirrels soon learn that a blister rust canker is a very acceptable meal. While this results in the quicker death of the infected pine branches and tops, it does not aid materially in the control of the disease.

Extract from the "Duluth (Minn.) Herald", May 15, 1932.

BLISTER RUST CONTROL AND UNEMPLOYMENT IN SHAWANO COUNTY, WISCONSIN.

A white pine survey made in Shawano County, Wisconsin, during the past winter by this office resulted in an urgent problem. An abundance of cooperative work with pine owners was lined up, but there was a limited amount of funds available; in fact, an inadequate amount to carry out the work that the pine owners and this office thought necessary. After much individual and collective interviewing done by the writer with persons in Shawano County interested in their own county unemployment situation a plan was mapped out and put through whereby some of the county's unemployed were utilized in blister rust work.

Through the Shawano County Committee of the Unemployed we chose among their unemployed men those whom we wanted to act as assistants to the regular State blister rust foreman in that region. These men chosen were put through eight days of intensive training in the field where they were given instruction in Ribes eradication work. In this "school" they learned not only by being shown and told how to do the work, but by doing it themselves, and when a man progressed from the line he was put behind the line, and so forth.

The men thus trained have now as their job the immediate direction of and work with the pine owner or men furnished by the owner. In many cases pine owners, particularly farmers, exchange help with their neighbor pine owner and if this occurs the same crew is used on both jobs. The aim is to choose local unemployed men for this work within the township six miles square so that they are near their work and can walk to it if necessary. The regular foreman in the vicinity not only daily checks on but works with these helpers chosen from the unemployed so that close supervision is kept upon them and the work that they are doing with pine owners.

This method of cooperating with the county through their unemployed is new to us in blister rust control work in Wisconsin, especially when these men are to direct the men furnished by the pine owner under the supervision, of course, of the foremen in the region. Just how effective this system will be remains to be seen after it has functioned longer but for the short time the plan has been in operation it appears to warrant further consideration.

T. F. Kouba, Wis.

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BLISTER RUST PHENOLOGY - MINN.

The first blister rust on Ribes was found today (June 10), near the Duluth Damage Demonstration while checking the area for missed bushes and sprouts (first eradication, 1930). Only one infected leaf was found though over a dozen bushes were examined.

Spring arrives in the vicinity of Duluth about two weeks after it does in the vicinity of St. Paul. Ribes infection, undoubtedly, could have been found two weeks ago further south.

L. B. Ritter, Minnesota.

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NEW WHITE PINE BLISTER RUST ROADSIDE
DEMONSTRATION PLACED AT CLEMONS, N. Y.

Six Other Permanent Demonstrations Retagged,
Signs Repainted, New Wording Used on Areas
Redressed for Coming Season.

Last week we completed the placing of a new Blister Rust Roadside Demonstration on the main road between Whitehall and Ticonderoga at a small place called Clemons. The area is on the left hand side of the road just beyond the Post Office. Similar ideas used on our former demonstrations have been carried out here; namely, placing of permanent signs, tagging of all infected and dead white pines, tagging currant and gooseberry bushes and placing of boxes with bulletins.

This area was placed through the courtesy of O. C. Benjamin, owner of the property. About 80% of the white pines in the demonstration are infected or dead. The trees average in size from 3 to 4 feet to 15 and 20 feet in height. Since this area has been marked, several requests have already come to the Albany office for inspection of pine lots in that neighborhood.

The other six permanent areas placed in former years were redressed; namely, the areas at Pottersville, Lewis, Conklingville, Wells, Eldred and Mariaville.

We endeavor and usually succeed in placing these demonstrations by Decoration Day in order to take advantage of the tremendous increase in travel past these areas over that week-end.

I am asked occasionally why it is we replace these demonstrations each year, why we use oilcloth signs instead of permanent wooden or metal signs. The answers are simply these: First of all, the tags become worn, bleached and faded out, and many torn from the trees. Many of the trees that were originally marked with tags reading, "Blister rust is killing this tree", die during the year, hence, the trees must be retagged with new tags reading, "Blister rust killed this white pine". Also, many new infections occur each year, meaning that new trees must be tagged. Therefore, retagging is necessary in order to attract attention and get the full benefit of the demonstration. Secondly, the signs get worn and faded and the standards themselves get soiled and dull during the year. Then too, the winter season raises havoc with the tags and dulls up the signs. It also tends sometimes to loosen up the standards. Occasionally, vandals wreck a sign or a hunter tries his luck by getting a bull's eye, peppering the signs with bird shot. Once bird shot goes through a metal sign, it is of no use, but with oil cloth, they can easily be replaced. Metal and wooden signs would also lose their brightness in one season. Hence, by using oilcloth signs, they can easily be replaced and the standards repainted. In other words, when we redress an area it has the appearance of a brand new one.

Then also our areas change yearly. Road gangs are going through seasonally, widening the roads or cutting the brush along the highway. They may move or cause to be moved, a sign here and there. At Eldred this was especially true this year. The road was widened and many trees bordering it were cut out. The large control sign had to be set back 3 feet farther from the road. A year ago virtually all of the signs had to be set farther out from the demonstration as the trees growing around them, though infected, were beginning to cover up the signs. The Ribes on this area have never been eradicated, hence, there are new infections occurring each year. The trees in the demonstration now are from 2 to 4 times as high as they were 4 years ago when the demonstration was first placed. Many of the trees are now 15 to 18 feet high and, although many are infected, they have overtopped the trees that were tagged in 1928 but have long since been lost beneath a gradual closing over of a new forest canopy. Blister rust, however, will kill off many of these dominant trees and in another year or two this will change the whole appearance of the present demonstration.

A list of the signs and tags used last year was given in the July, 1931 issue of the Blister Rust News. Some of these have been slightly changed this year.

These demonstrations have certainly served their purpose well in advancing knowledge of blister rust to the public here in New York and to thousands of tourists passing them yearly.

George E. Stevens, New York.

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MAY IN MASSACHUSETTS

We were favored during May with ideal weather for effective Ribes eradication work. The associated vegetation advanced very slowly on account of cool, dry weather, thus extending the period during which our best work can be accomplished. The conditions that favored field work were at the same time unfavorable for the spread of the rust to local Ribes. The records of the Boston forecast district of the Weather Bureau indicate a deficiency of 1.55 inches in rainfall and an unusually low percent of relative humidity. There were to be sure brief periods of unusually hot weather with a maximum of 93° on the 16th; 91° on the 25th; and 93° on the 26th. On the other hand frosts were reported in many localities in the State during the month.

The favorable field conditions permitted a good start on our plan for the year, and cooperation obtained from local owners was particularly gratifying in view of economic conditions. During the month work was in progress on 138 control projects on 37,000 acres of land. On these projects 116,000 wild Ribes and 290 cultivated bushes were destroyed. Individual cooperators including other State Departments devoted in the neighborhood of 3,000 man hours to scouting and Ribes eradication activities.

June 10, 1932.

C. C. Perry, Massachusetts.

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WHITE PINE STANDS IN JAY COOKE PARK, MINN. ARE NOW PROTECTED FROM BLISTER RUST

The protection of the white pine stands in Jay Cooke park from blister rust was completed early this week, Park Officer C. E. Read reports.

"We have had a crew of men pulling the wild currants and gooseberries around the stand of white pine in the southeast corner of the park the past week. When this work is completed all but the scattered white pine in the park will be protected," he said.

During the past summer over 200 acres of pine in the park were protected from blister rust by a crew working under the direction of E. B. Dahl, blister rust agent.

Apparently, 1926 and 1928 were very favorable years for blister rust infecting white pine, L. B. Ritter, state blister rust control leader, declared. "During the past week we have found new blister rust infection centers in Gnesen township near the Emerson and Howard-Gnesen roads, west of Pike Lake and south of Pike Lake."

The State Forest Service and the United States Department of Agriculture are cooperating to secure the control of blister rust. They furnish a trained foreman free of charge to pine owners furnishing the necessary labor to destroy the wild currants and gooseberries in and around their white pine stands.

Extract from the "Duluth Herald", June 10, 1932.

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P U B L I C A T I O N S

Blister Rust

Kouba, T. F. "White Pine Blister Rust Situation in Wisconsin".
Wis. Dept. of Agric. and Markets Bul. No. 123, Land Economic
Inventory of Northern Wisconsin, Vilas County, p. 13-14.

Root, George A. "Progress of Preparedness for Protecting Sugar Pine
Against Blister Rust", The Monthly Bulletin, Dept. of Agric. State
of California, February-March, 1932, Vol. XXI, Nos. 2-3.

Ribes

Darrow, G. M. and Waldo, G. F. "The Glendale Gooseberry". U. S. Dept
Agr. Circ. 223, 4 p. illus. Ap. 1932.

BLISTER RUST CONTROL WORK IN NEW YORK IN 1931 *

Of the different forest pest problems in which the Department has taken an active part White Pine Blister Rust Control in accomplishment looms large. The opening of the season was normal, beginning in Saratoga County on April 29th and at intervals of a few days in other sections until May 13th when it was in progress in all districts. The close of the season in comparison with other years was about normal, ranging from September 1st to September 15th, which was the final closing date, except for cultivated Ribes elimination which was continued a few days longer. In a season of normal length, the organization is able to report having covered the greatest area in any year of its work. ****.

A meeting of all blister rust agents was held at Albany on March 19th at which plans were discussed in detail. The plans included:

- (a) Initial eradication on State and private land.
- (b) Reeradication to be restricted to property where owners requested inspection or protection work.
- (c) Plantation inspection and protection on a larger scale than heretofore attempted.
- (d) Cultivated black currant (Ribes nigrum) elimination, particularly in the white pine control areas, but to some extent also in other sections as time and conditions warranted.
- (e) Commercial nursery sanitation, the same to be governed by request from nursery owners.
- (f) Protection of white pine plantings on Reforestation Areas.
- (g) Inspection of protected areas by experts on blister rust control work to get information on the efficiency of the work.

One of the most important accomplishments at this meeting was the inauguration of a new blister rust control system in the principal white pine growing sections. The system heretofore practiced has been a repetition of interviews and follow-up calls with white pine owners in an endeavor to induce them to protect their holdings from blister rust. Many times the blister rust agent, or others, when discussing the Ribes situation with the white pine owner was guided by a limited knowledge of the true conditions on the entire lot. He, of course, had some information concerning the Ribes population in certain localities on the lot where he was soliciting cooperation, but all too frequently this limited knowledge led to a conclusion that the Ribes population over the entire lot was uniform, thus requiring the property owner, depending on the size of the lot to be covered, to furnish five or six men for a period of a few days to several weeks, which of course did not appeal to the white pine owner. The plan this year eliminated these repeated interviews and follow-up calls. The blister rust agent or someone delegated by him made a complete inspection of the pine stand before approaching the owner. The agent, when making the inspection, made notes on the spots where Ribes centered. He also up-rooted the scattered bushes found during his inspections.

* Extract from the 21st Annual Report of the New York Conservation Department for the Year 1931.

In many lots, the destruction of the scattered bushes protected a relatively high percentage of the stand, leaving only the spots where the Ribes population was dense on which the land owner should finance the control work. When the land owner was approached and given concrete information on the conditions noted in connection with the inspection and told that through this inspection part of his stand had been protected, he was very willing to furnish help to carry on control work on the dense Ribes spots.

The time formerly spent for travel from one white pine property owner to another in fruitlessly soliciting his cooperation has this year been spent accurately to inspect and determine the true condition on the entire pine lot. The results of this change have been very gratifying, as a good many important white pine lots have been protected on which, under the former policy, cooperation of the land owner would not have been procured.

The third or final step in preparation for the season's work was to get together a supervisory force. A training school for foremen was opened at Hague, Warren County, on State owned land in that neighborhood. The attendants for the most part were students or graduates of forestry schools.

A passing comment only will now be given the projects incorporated in the year's work. Details are more fully explained in the discussion of the work in the different districts.

State-Owned Nursery Sanitation

This phase of the blister rust control program is annually given first consideration. The policy of maintaining a 1500-foot Ribes-free zone, plus a one-mile zone free of cultivated black currant (Ribes nigrum) around all State-owned nurseries, is rigidly practiced. As soon as seasonal conditions permitted this year, work was started simultaneously at all nurseries. Ribes leaves usually open earlier in the season than do those of other plants. Thus for a short period they stand out rather conspicuously. The aim therefore is to cover the nursery protective zones before the competition of other plants interferes with the work to any extent. An early start aids further towards increasing the efficiency and decreasing the cost of the work.

Initial Eradication Work

A high percentage of this year's work has been initial eradication. It seems that time should be devoted to this part of the blister rust control program until at least most of the important white pine stands have been initially covered. Unfortunately, the latter condition is not yet in sight in several counties.

Summary of Ribes Eradication

	<u>Private Land Covered</u>	<u>State-Owned Land Covered</u>	<u>Ribes Removed</u>	
			Wild	Cultivated
Initial	109,803	8,845	1,515,720	5,888
Reworked	5,718	9,107		
Grand Total of Acres Covered			133,473	
Grand Total of Ribes Destroyed			1,521,608	

PLANTATION DATA FROM DISTRICT #8 IN NEW YORK

New York has been making great strides in forest tree planting as is indicated in the planting records for Lewis, Oneida and Herkimer Counties. White pine forms a large proportion of the trees planted. The following figures give details concerning the planting in each county, with particular reference to white pine plantings:

Lewis County

Lewis County has planted on an average of 1 to 1½ million trees each year for the past 7 years.

Total number of trees planted 1909-1931	13,809,150
White pine.....40%	5,511,000

The high point in white pine plantations came in 1927 with 779,500 trees. For the past three years white pine has been planted as follows:

1929	363,250
1930	423,600
1931	<u>431,750</u>
	1,218,600

Oneida County

Oneida County planted over 1 million trees per year in 1926-1927 and 1931.

Total number of trees planted 1909-1931	9,023,975
White pine32%	2,853,675

The high point in white pine was in 1926, with 440,650 trees.

Herkimer County*

Herkimer County has never reached the mark of a million trees a year. The high point in white pine plantings was in 1926 with 278,500 trees.

Total number of trees planted 1909-1929	5,137,750
White Pine34%	1,743,450

Total for District #8

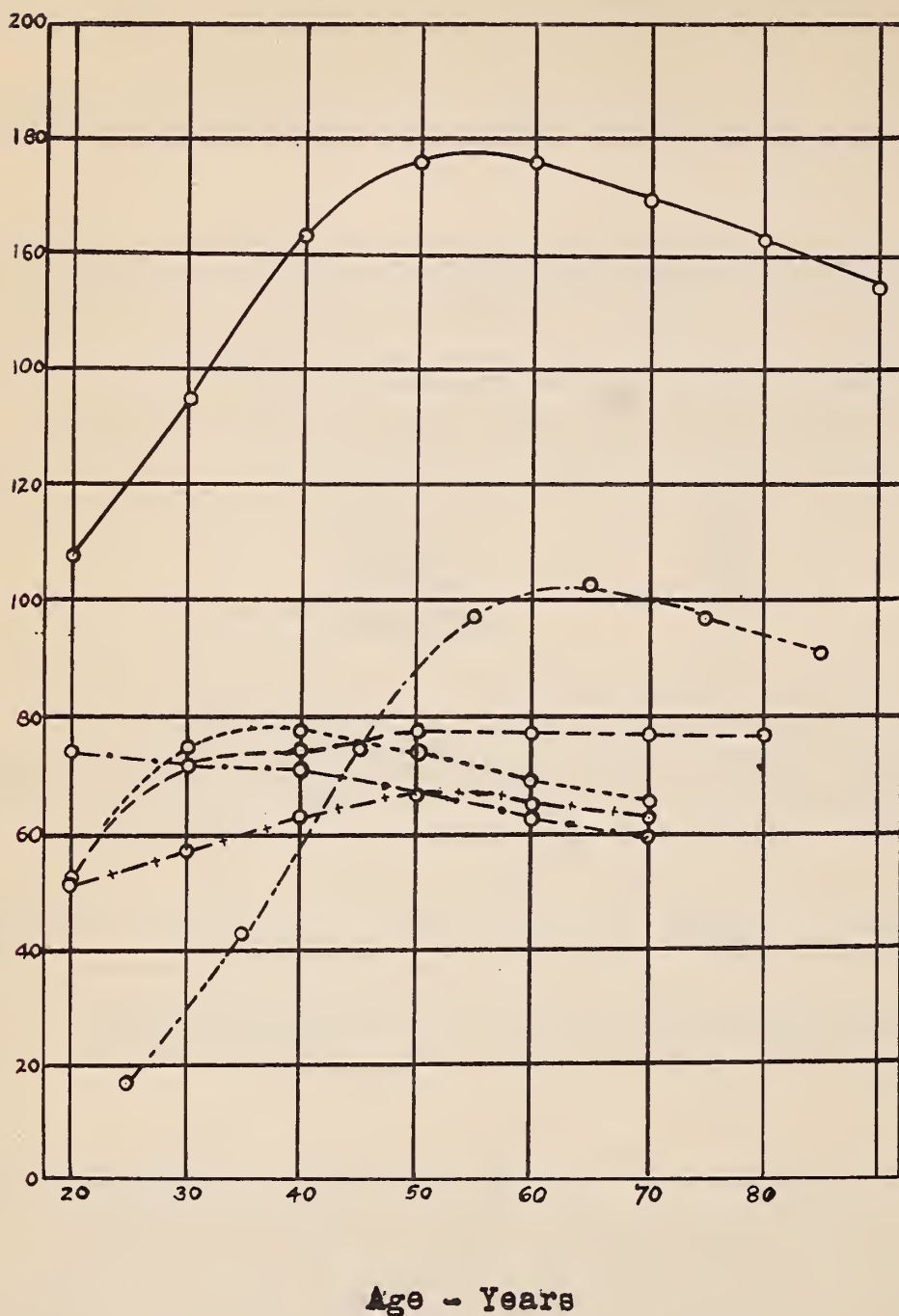
	<u>All Species</u>	<u>White Pine</u>	
Lewis County	13,809,150	5,511,000	
Oneida "	9,023,975	2,853,675	
Herkimer "	<u>5,137,750</u>	<u>1,743,450</u>	
	27,970,875	10,108,125	36% white pine

T. P. Woolschlager, N. Y.

*Records available for 1909-1929 only.

TABLE SHOWING AVERAGE ANNUAL GROWTH OF VARIOUS FOREST TYPES ON THE BEST SITES IN THE NORTHEAST.

Average Annual Growth - Cubic Feet per Acre



- White pine
- Spruce
- .-.- Northern hardwoods
- +--+ Paper birch
- Transition hardwoods
- Oak

(Extract from Technical Bulletin No. 166, "Timber Growing and Logging Practice in the Northeast" by Samuel T. Dana, March, 1930.)

The above table shows the great superiority of white pine over the spruce and the hardwoods. Eighteen pages of this bulletin are devoted to the white pine types. Perusal of this section, pages 56-74, should be interesting to each of our agents in the Northeastern and Lake States.

NEW DISEASE ON WHITE AND RED PINE

A tree disease new to American forest pathologists and apparently caused by a fungus as yet unidentified is under investigation by Dr. Harlan H. York, investigator and consultant forest pathologist of the New York State Conservation Department. The disease attacks white and red pine and has made considerable headway in the plantations of the City of Rochester on Hemlock and Canadice Lakes in southwestern Ontario County. It also exists in white pine plantations of the Norwich Cemetery Association at Norwich, where it was first noticed in 1928. About 40 acres of the Rochester plantations are affected by it.

The studies being made by Dr. York and his associates have not progressed far enough for complete determination of the cause of the disease. but the fact that it operates on the base of the tree trunk and on the portions of the roots close to the trunk has been definitely established.

A characteristic of the disease is a profuse exudation of resin at the base of the trunk which permeates the soil for several inches around each diseased tree still living. It is considered possible that the disease may spread from tree to tree through the ground, as infected trees were found closely surrounding trees killed by the disease which apparently had served as foci of infection. Twenty-one infected trees still living were found surrounding one such dead tree.

Theories that the trouble was caused by insect pests or by the fairly well-known "shoestring fungus" have been nullified by the investigation. No trace has been found of either. Series of cultures have been taken from the infected trees for microscopic study and identification, and for this purpose various culture media are being tried. Experiments in means of combatting the disease will then be taken up.

Examination of the infected parts of the tree shows a characteristic mottling of the inner bark near the base of the trunk and an enlargement and breaking down of the resin pores in the same region and in the wood.

The character of the soil types in the two areas in which the disease has been found is dissimilar, pointing to the probability that the disease is caused by a fungus.

"If it should prove", said Dr. York, "to be a disease of foreign origin, its history may be found to be similar to that of other plant diseases introduced into this country from abroad, which have had a period of slow development of several years, followed by great activity when the fungus becomes adapted to its new environment."

The disease apparently requires about from three to five years to kill a tree after the attack has begun. The trees in which it is spreading in the Rochester plantation are of both white and red pine set out in 1910 and subsequent years and are thus of considerable size.

HANDLING OF OFFICIAL REGISTERED MAIL RECEIVED IN BAD CCNDITION

The following letter from the Postmaster, Washington, D. C., outlines the procedure to be followed for the handling of official registered mail received in bad condition.

UNITED STATES POST OFFICE
Washington, D. C.
First Class

Division of Mails

May 11, 1932.

Chief Clerk,
U. S. Department of Agriculture,
Washington, D. C.

Sir:

The Postal Laws and Regulations provide that registered mail becoming damaged during its handling by the postal service shall be re-enclosed in a special envelope provided for such purpose. It is further provided that such mail shall be opened and the contents examined upon delivery in the presence of the delivering postal employee.

The Post Office Department realizes that it is impracticable to accord such treatment to official registered mail addressed to the various Government departments and bureaus in Washington as such mail is in most cases delivered to messengers who are not authorized to open the mail they receive.

This office has therefore been requested to advise you that any official registered mail addressed to your institution, received in bad condition, will be delivered with the other registered mail and it is suggested that such mail be examined upon receipt at your office by some responsible official and this office advised by the return of the re-enclosing envelope, appropriately indorsed, whether or not the contents are intact.

It will be appreciated if you will acknowledge the receipt of this communication.

Sincerely yours,

(Signed) W. M. Mooney,

Postmaster.

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No. 7
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July, 1932.

THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and Cooperating States.

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U. S. Department of Agriculture
Bureau of Plant Industry
Division of Blister Rust Control
Washington, D. C.

SMALL INFORMAL GROUP MEETINGS PROVE SUCCESSFUL

While the following plan may not be new and may have been used by other agents, I do not recall its ever being mentioned in the News Letter. I have been utilizing it for some time and mention it for what it is worth. I have had very good results from it.

The plan is simple in execution. I simply go into a town and arrange for an interview some time that day or evening with one or more of the leaders or town officials in order that we may talk over, informally, the matter of blister rust control and any other forestry matters that may be of interest. At the same time I mention that I would be glad to have an invitation extended others who might be interested. In this way the meeting might be arranged for an afternoon or evening with anywhere from one to ten present. Often, in this way, I am able to get across the importance of blister rust control to people who otherwise would never become interested. Some of those who have become interested through the medium of such meetings have later assisted materially in our plan of securing town cooperation.

I find that people in small groups will often ask questions they would not ask at a larger meeting, and I am thus able to become more intimately acquainted with them, learn of their problems and inform them regarding my own.

G. F. Richardson, Jr. New Hampshire.

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CONTROL WORK IN GRAND RAPIDS USES UNEMPLOYED

Blister rust control work helped solve Grand Rapids unemployment situation. The work was carried on in cooperation with the Department of Parks in which the workers were paid in scrip. This scrip is redeemable in necessities of life at a store operated by the Welfare Department of the city.

The Park, donated to the city by Jacob Aman, is to be kept in a natural state. Plantings, including white pine, are being made from year to year by school children from the public schools of Grand Rapids. The plantings consist of ten acres at the present time. In addition to the plantations, twenty acres of natural white pine, varying from reproduction to mature trees and of high aesthetic value were also protected.

The control job at Aman Park lasted about two weeks and, although the highest efficiency was not secured, fair results were obtained using this type of labor. Agent Fox was in charge of this work.

R. I. Thompson, Michigan.

JUNE IN MASSACHUSETTS

We were favored again during June with splendid weather for field work. The few days of rain did not interfere materially with the work, and the resulting rainfall has been a real blessing to the farmers and city gardeners. In spite of our impression that conditions during May were not favorable for the development of infection on Ribes, observations in the field during the last two weeks of June showed an abundance of uredinia on wild Ribes, especially on *R. cynosbati*. In this same connection it may be of interest to note that other diseases have been unusually prevalent; for example, seldom has there been such a spectacular display of cedar apples on our native red cedars, particularly in southeastern Massachusetts. Toward the end of the month observations in Essex County in the town of Boxford, disclosed abundant evidence of the forthcoming cluster-cup stage of the so-called Ash rust developing on the petioles and leaf blades of our common white ash.

Cooperation is being secured in homeopathic doses, but we have been encouraged to find that we can obtain any aid this year. During the month 148 control projects were under way on 30,767 acres. On this area 95,000 wild Ribes and 54 cultivated bushes were destroyed. Local cooperators including one other State department and two municipal water supply departments expended 2,650 man hours with our men in performing control work.

In the southeastern district we are again confronted with a serious gypsy moth problem. Hundreds of acres of woodland in the territory including the town of Middleboro and adjacent townships have been stripped of their foliage. Extensive damage has been done even to white pines in this territory, and for this reason we find it increasingly difficult to interest owners in the blister rust problem under such conditions. If gypsy moth feeding continues, there will be no white pines for the blister rust to attack in some of these sections.

July 1, 1932.

C. C. Perry, Mass.

Comment by Mr. Blackman of the Bureau of Entomology on the above:

This damage to the white pines probably means that the insect has passed its first two stages on the broadleaf trees in the pine-broadleaf mixture.

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WITH THE BOY SCOUTS OF SUPERIOR, WISCONSIN

The Evening Telegram of Superior, Wisconsin, for May 30, had an attractive photo showing the boy scouts of Superior who had been engaged in blister rust control on Tomahawk Island at Amnicon Lake in Douglas County. The Island belongs to the State. The boys planted 3000 white pine and white spruce on the Island on May 30. Mr. Kouba stated in this connection that 1/3 of the island was covered on May 30, several thousand wild currant and gooseberry bushes being removed. Whenever the boys have another field day, Mr. Jacobson, one of our foremen, who by the way is scout master of this troop, will have the boys remove bushes from some more of the Island.

GREAT BARRINGTON (MASS.) ROTARY CLUB HEARS ABOUT BLISTER RUST

An invitation from the Rotary Club of Great Barrington extended through our local postmaster, gave us an unusual opportunity to present the subject of blister rust to a sizeable gathering of the leading business men and friends in this vicinity on June 22. The talk followed a luncheon at the Berkshire Inn where fifty members were present, (a full house), including five visitors. Fifteen others including "visit-guests" at the Inn also heard about the rust.

The subject was covered from its early history down to the present time, starting out in a general way, but gradually coming down to data and facts concerning our own State, then Berkshire County and finally to the towns in which we are working at the present time. Because of our unique geographical position in the heart of the Berkshire Hills, catering largely to summer residents and tourists, special emphasis was placed upon the aesthetic value of our forests and white pine in particular, because every man present would be directly or indirectly benefited by sustained or increased business in this vicinity.

Since one-half hour was to be devoted to the subject, careful reworking and timing of the subject matter was made so that the talk should only consume twenty minutes, thus allowing ten minutes for an open meeting and questioning. Many questions were asked; in fact, they continued for a half hour period after the closing of the regular meeting. Never before have we attended a meeting where such close attention was paid to the subject in hand.

A stereomotograph was brought into play with twenty-five slides depicting the story of the rust. This set-up was in the lobby of the Inn and was in operation before, during, and after the meeting. During the talk on the rust ten of our best test tube specimens showing the spring stage of the rust on pine, and ten of the window envelope riker mounts containing leaves of various species of Ribes infected by the rust, were circulated through the gathering, a set to each table. Bulletins were at hand for any who wished to take them and a moderate supply was left on the reading table and at the clerk's desk at the Inn.

After the close of the meeting a local attorney asked for an examination of his pines, ornamentals growing well within the residential area of Great Barrington, and in less than two hours the trees were inspected. The attorney, his wife, and the caretaker on the place, received a blister rust demonstration on their own lawn, for one tree was found to be infected with a branch canker dating back to 1927. The limb was immediately amputated to prevent the development of a trunk canker. During this procedure a "colored gentleman" mowing a lawn on the adjacent property hove in sight with inquiring eyes as to what it was all about. A little later he too was given a line on the rust in a neighboring yard bounded by a white pine hedge.

It may not be amiss to mention the fact that the owner of the Inn where the meeting was held has been our best cooperator this season, he having recently acquired extensive timberland holdings in the immediate vicinity.

June 25, 1932.

G. Stanley Doore, Mass.

BLISTER RUST IN WOOD COUNTY, WISCONSIN

Mr. Kouba has turned up infections in a new county in the central part of the State. The following data concerning the infections is quoted from a letter of Mr. Kouba's dated April 9:

"I have just returned from conducting a white pine survey on part of the Nekoosa-Edwards Paper Company lands near Wisconsin Rapids, Wisconsin, in Wood County. I had gone over the white pine that Mr. Kilp took you and me through and found five pine infections in it. Across the river just north of the village of Port Edwards, Wisconsin, Mr. Kilp and I found six pine infections, which indicates that there must be considerable blister rust in that community. This is the first blister rust we have ever found in Wood County. Mr. Kilp and I tried to find some cultivated black currants in Port Edwards but our efforts proved futile, but that does not indicate that there are none there for we made no direct house to house canvass. I did make a house to house canvass in Wisconsin Rapids, (Wood County) of about 40 places and found three cultivated black currant bushes. I dug around the bush and found some last year's leaves which showed heavy infection".

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SAVE THE WHITE PINE OR OUR TOWN WILL BE A THING OF THE PAST.

A few years ago in interviewing one of the leading hotel owners in my district as to his opinion of the value of white pine in his town from an aesthetic standpoint, I asked him this question: If the commercial value of white pine in your town is represented by \$1,000.00 what would, in your opinion, be the percent of increase on account of the aesthetic value of the pine?" His reply was, "I do not know what to say about the percent of increase, but, unless the white pine is protected and saved our town will be a thing of the past. You ought to increase it enough to be certain of our having it ALWAYS."

I was very much surprised at the varying replies received from the people to whom this question was addressed. There seemed to be a vast difference of opinion, although all agreed that its value was, from the aesthetic standpoint, much enhanced. Some placed it at 25 percent; others as high as 500 percent; many that it would average more than 50 percent higher; still others would set no figures but stated it was beyond putting into dollars and cents. Many of these were people whom I did not think would consider the aesthetic value.

G. F. Richardson, Jr. - N.H.

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MORE ABOUT RODENT INJURY

Rodent injury on pine has been unusually severe in this district this year but I cannot say whether it is porcupines, rabbits, red or gray squirrels or all of them. One white pine about 18 feet tall with three cankers at different whorls on the trunk had fully six feet of the bark gnawed off. The 1932 Spring has been a cold one in this section causing blister rust aecia to appear later than usual. They were first seen in Effingham, April 25th. Squirrels or other rodents seem to have gnawed every canker, which must cut down the spore production considerably.

S. H. Boomer, N. H.

REAL ESTATE COMPANY BANS RIBES

During the progress of the work of scouting for black currants in towns on Cape Cod this past winter, I had occasion to interview the Superintendent of the Dupont Estate at Oyster Harbors, otherwise known as Grand Island. When I informed him of my mission he told me that my search would be needless because no currants or gooseberries were allowed on the Island. It appears that during the real estate boom on Cape Cod a few years ago a development concern bought Grand Island. Since that time an 18 hole golf course has been established in the wooded sections at considerable expense, together with a big club house, the latter by the way resembling a hotel. Practically all the desirable shore lots are now sold. Certain restrictions as to type of houses, garages, and even fences were placed in the deeds. It seems that included in the restrictions was a provision forbidding the planting of currants and gooseberries. I scouted all estates on the Island and found no Ribes. Apparently the restrictions have been vigorously enforced.

June 28, 1932.

E. M. Brockway, Mass.

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AN AID TO LOCATING INFECTION ON CULTIVATED RIBES

In connection with the examination of the foliage of specimens of Norwegian Red Dutch currants under my care, I have had occasion to draw upon my experience of years ago in connection with gipsy moth control work. In that work, especially in the examination of properties in the more thickly settled communities, our equipment included a specially designed oblong hand mirror. This mirror was used to facilitate the examination of the under sides of front and back steps of a house, the underside of sills and to look into out of the way cavities in old trees. I now find that by using a mirror it is an easy matter to thoroughly examine the lower leaf surfaces of Ribes plants without trying to turn every branch in order to see under the side of the leaves. It is not necessary to have a specially designed mirror for the purpose, but one purloined from the boudoir of milady fills the bill. By holding the mirror at two or more points at the base of the bush and then again at a number of points at a halfway level, it is possible to do a thorough job in record time. I have found this method helpful and pass along the idea for what value it may be to others.

June 28, 1932.

C. C. Perry, Mass.

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EMPLOYEES' COMPENSATION COMMISSION - DISABILITY COMPENSATION

Where neither disability nor death occurred within year from the date of a fall alleged to have resulted in injury to a Government employee, and no claim for disability was filed within that time, all rights under the employees' compensation act terminated and could not be revived by disability or death occurring thereafter. 11 Comp. Gen. 392.

ROADSIDE DISPLAYS GOING UP IN THE BERKSHIRES, MASSACHUSETTS

The roadside displays that have been more or less standardized in Massachusetts are again appearing at vantage points in southern Berkshire County as in years past. Three of these displays have been set up on the main traveled routes, while four more are now ready (cleaned up, painted, new signs, test-tube specimens wired to side, and a tin can to hold abbreviated folders attached), to take their places in the field.

These displays do not necessarily stay in a given place all the season. Of course, the choice locations are cared for all the season, but we find it greatly to our advantage to shift others from place to place. For instance, in this section we have numerous summer camps for boys, scout camps, etc., in which some course in nature study is given. The operators of such camps are always glad to have a display even if only for a short period. While this shifting about does not help our local cooperation especially, still one can never tell how far reaching the effects may be.

June 30, 1932.

G. Stanley Doore, Mass.

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THE LORD RESERVATION IN NEW HAMPSHIRE PROTECTED FROM BLISTER RUST

An article printed in the News Letter last year described the Lord Reservation in Ossipee, N. H., and was followed by the comment, "Page the Blister Rust Agent".

The tract is a fine strip of white pine bordering the highway for about one-half mile. It was first examined for Ribes in 1920. This spring the reservation and a 900 foot protective strip was thoroughly worked again. There was very little infection or Ribes in the tract itself. Some Ribes were found in the protective strip which is cutover land. Mr. Lord removed his own cultivated currants several years ago.

S. H. Boomer, N. H.

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SECURING PRIVATE COOPERATION

Mr. H. G. Bradbury, Agent in Maine, writing under date of June 24th to Mr. Frost, stated that he had just been at Hope, Maine, that day and had secured the cooperation of the Alford Lake Camps to the extent that they were spending \$75 in Ribes eradication work. He also did some scouting on the Highfield Camp area. Found Ribes very scattering.

Mr. Frost comments as follows: "This shows that private work can be secured if gone after. The presentation of facts are necessary if we get private cooperation in these hard times. It can be done, however."

BLISTER RUST CONTROL IN NEW HAMPSHIRE ENDORSED BY FARM BUREAU FEDERATION

The following resolution was passed at the annual meeting of the New Hampshire Farm Bureau Federation, January 15, 1932:

Whereas continued and increased production of timber in New Hampshire is of vital and economic importance to the State's future welfare.

Therefore, be it resolved that the New Hampshire Farm Bureau Federation at its annual session hereby endorses and approves the work and activities of the State Forestry Department in all its efforts to promote better forest practices and secure adequate protection of our woodlands, including its White Pine Blister Rust Control program.

Sent in by T. J. King, N. H.

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NEW HAMPSHIRE WHITE PINE SPECIFIED IN CONTRACTS

The writer had occasion to visit with a member of a large contracting firm in New Hampshire, within the past two weeks, and the topic of conversation involved the choice of timber for buildings to be constructed under their supervision.

It was intimated that this firm has under contract the erection of two large buildings that will cost in the aggregate about one million dollars. The specifications, in each instance, definitely call for the use of New Hampshire white pine.

It is the opinion of this contractor that a change in attitude regarding the choice of building material has taken place among the purchasers and he feels certain that our native white pine will be in greater demand than ever before. He further states that if lumbermen were a little more active and persuasive in enlisting the cooperation of architects the call for white pine would be much larger than it is at the present time.

Thomas L. Kane, - N. H.

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NEW DISEASE SPREADS

A new disease of white pine in plantations that will kill trees attacked in 3 to 5 years, has been reported by the Department of Conservation. This disease operates on the base of the tree trunk and on the roots close to the trunk causing a profuse run of resin. The disease was first observed in 1928, on the Norwich Cemetery Association's plantations at Norwich. Since then it has affected plantations of both white and red pine in Rochester and other places.

Extract from "The News Letter", published quarterly by the New York State College of Forestry at Syracuse University, Vol. XXXII, No. 2, April 1932.

PENNSYLVANIA AGENTS LAY OUT TWO INFECTION STUDY PLOTS

In March, 1932, Messrs. Fatzinger, Gackenbach, Kase, and May, laid out two plots to study blister rust infection conditions. One was in a 17-year old plantation, belonging to the State, located at Hartley in Union County. Area of plot was 1/8 acre. The *Ribes* averaged 187 per acre, and were of two species, *R. rotundifolium* and *R. cynosbati*. *Ribes* eradication in the plantation was completed in 1932. The pine varied in height from 2.3 ft. to 19.6 ft., averaging 12.3 feet. The diameters of the trees ranged up to 4.8 inches at breast height. Infections were found dating back to 1921. Of the 87 trees on the plot, only 4 were found without visible cankers. Those with cankers had from 1 to 406 per tree. The average number of cankers found per infected tree was 52.

At first sight it seems as if the plantation is ruined, since only 4 trees are without cankers. Since *Ribes* have been removed we can assume no new infections will take place, though it is likely that some old infections may show up. Four healthy trees to 1/8 acre will not produce a white pine stand at maturity. It is likely, however, that there will be additional trees surviving, through the death of cankers as a result of the shading out of the lower branches. However, the securing of an adequate stand of pine on such a heavily infected lot without recourse to artificial pruning seems doubtful.

An experiment might well be considered to attempt to salvage sufficient pine on the area to insure a successful forest at the end of the rotation. The trees are of such a diameter that pruning the dominant trees, if not too badly infected, would seem feasible. A check plot should also be considered in connection with any experiment such as suggested.

The second plot, also an eighth acre in extent, was laid out in a spruce and pine plantation belonging to the State, located in the town of Greene, Pike County. The trees were 15 years old. *Ribes rotundifolium* and *cynosbati* averaged but 20 per acre. Eradication on this plot was completed in 1931. The pine varied in height from 3.7 ft. to 15.2 ft., the average being 10.95 ft. The diameter at breast height ranged up to 3.7 inches. Infections dated back to 1922. Of 60 white pine trees on the plot only 6 were without visible cankers. The trees with cankers had from 1 to 108 per tree, the average number per infected tree being 22.

While the number of *Ribes* per acre in the Pike County plot is but 20, contrasted to the 187 per acre in the Union County plot, there were sufficient bushes per acre to infect 90% in 8 years. Much less pruning for disease control would seem necessary on Plot 2 to bring through a good stand, than for Plot 1. Experiments carried on in New England in pruning infected pine plantations have proved successful in eliminating the blister rust, or in saving sufficient trees to make possible a full stand.

Reviewed by R. G. Pierce.

BLISTER RUST CONTROL WORK IN NEW YORK IN 1931*
(Continued from June Issue)

White Pine Blister Rust Investigations

The investigations in 1931 in connection with White Pine Blister Rust have been of four types: (1) A continuation of observations on the plots laid out in 1923 and years following with the object of getting some fundamental data on the damage caused by blister rust. (2) Continuation of the inoculation tests on species and strains of white pine thought to have some resistance to blister rust. (3) Investigations of conditions in white pine plantations where considerable infection has taken place since eradication. (4) Studies dealing with certain points in the ecology of the alternate host plants of the genus *Ribes*. ****.

At Newcomb, Essex County, where white pines from seed of a tree supposedly immune to blister rust are being tested, a check of the trees inoculated in 1929 showed that 41% now have definite evidence of infection. This constitutes a high per cent of success, based on the results ordinarily obtained in artificial inoculation and indicates that these trees, the offspring of a highly resistant parent tree, have not inherited any pronounced resistance to blister rust attack. Whether this means that resistance, in this case, is not an inheritable character, or whether a mixing of strains through pollination from a non-resistant staminate parent may be held accountable, is at present an open question. ****.

Ribes Investigations

Observations during the past season indicate that *Ribes nigrum* seed will germinate readily under favorable natural conditions and that seedlings will survive over winter as successfully as those of native *Ribes*. In spite of this fact, it appears that cases of seedlings developing after the removal of cultivated *Ribes nigrum* are, on the whole, rare, due to the fact that in such places conditions are either not favorable for germination or else the ground is disturbed following the removal of the original bushes. It is planned to continue these observations next year.

A second type of studies in connection with *Ribes nigrum* has been the investigation of cases where *Ribes nigrum* plants were found growing outside of cultivation. A preliminary statement on one such case at Tupper Lake in Franklin County, has already been given in the 1930 Annual Report of the Department. At the time the 1930 report went to press, the identity of the plants in question had not been positively determined. In the spring of 1931, however, flowering specimens were submitted to Dr. Homer D. House, State Botanist, who did not hesitate to identify them as *Ribes nigrum*. During the winter of 1930-31, when it was possible to traverse the swamp in which the bushes were growing, a survey was made to obtain an estimate as to the abundance of the bushes and their distribution on the area. This estimate was probably not as accurate as might be desired due to the difficulty of locating the bushes without the foliage. It did establish the fact, however, that the number of escaped *Ribes nigrum* in the swamp is undoubtedly close to a thousand bushes, concentrated for the most part on two areas comprising about 5 acres, in the part of the swamp directly adjacent to a section of Tupper Lake village.

* Extract from the 21st Annual Report of the N.Y. Conservation Dept. for 1931.

WILLIAMSPORT WATER CO. COMPLETES INITIAL RIBES ERADICATION PROGRAM

The Williamsport Water Co., owning a block of land containing 17 square miles in the Seven Mountains near Williamsport, have completed the initial eradication of Ribes near their white pine plantations.

The watershed is composed of a number of old farms surrounded by a dense growth of vigorous hardwoods. Plantings were made only in old fields, thereby giving the young trees ideal growing conditions until they became established. White pine was the principal species planted, but red pine and pitch pine were also planted quite extensively. The ages of the white pine plantations range from 2 to 15 years.

Due to the fact that the plantations were made in old fields, the Ribes eradication problem was greatly simplified. Very few bushes were found in the hardwoods, the majority being pulled along the numerous fence rows and at the old farm foundations. 18 foundations falling within the protection zone were examined and approximately 3,000 cultivated red and black currants were pulled. 10 other foundations were examined for black currants but none were found. The old time farmers in this vicinity surely had a complex for raising cultivated currants, these currants being found at nearly every foundation.

Up to this date the plantations have suffered little damage from blister rust, although it was quite evident that the disease was creeping in rapidly due to the heavy infection on Ribes. The area was examined by Mr. Hodgkins in 1930 and he reported several infections on pine.

Quite a bit of damage was done in a 20 year old red pine plantation by an insect which I took to be a species of *Dendroctonus*. It appears to be a bark beetle which bores into the cambium layer just above and below the whorls. The beetle then proceeds to eat its way around the tree and girdles it. At the time of my examination 6 trees were killed and many others were damaged. I encountered a similar condition in 1931 on the lands of the Pittsburgh Coal and Iron Company in Clinton County, but the damage done there was not quite so severe.

In closing I might add that the watershed abounds in wild life; deer were a common sight. We saw an old bear and two cubs tearing down a large lilac bush, also two red foxes slinking through the fields.

The total kill amounted to 7,933 wild Ribes, 2,981 cultivated Ribes, and two rattlesnakes, requiring the examination of about 497 acres.

J. J. Gackenbach, Pa.

Edit: A specimen of the red pine, which Mr. Gackenbach mentions above as being damaged by an insect, was sent to the Bureau of Entomology for examination. Mr. M. W. Blackman of that Bureau writes as follows concerning this specimen: "The material sent in by Mr. J. J. Gackenbach contains the work of Ips calligraphus Germ. This barkbeetle is nearly invariably secondary, attacking trees only in a dying or much weakened condition. The bark sample also included several associated beetles, two species of hemiptera and one caterpillar which have not been identified as they had nothing to do with the dying of the tree."

THE UNEMPLOYED USED IN RIBES ERADICATION IN
THE UPPER PENINSULA OF MICHIGAN.

We have just completed eradication work to protect the pine in Henes Park and the adjoining Henes Estate in Menominee County. This park is unquestionably one of the most beautiful public parks in Michigan. It is located on the outskirts of the City of Menominee and not far from Marinette, Wisconsin. Thousands of people use it annually. The entire area protected covered 79 acres. One hundred and ninety-two acres were worked, requiring 712 hours by the crew and 192 by our foreman. Bushes were exceedingly numerous; 112,258 having been destroyed. It was necessary to employ a horse and wagon to take this great quantity of bushes out of the park. Ribes americanum and R. triste predominated. The crew consisted of 5 men who were taken from the list of unemployed in Menominee. Two of the men were paper hangers, one a student who had dropped out of college, one an employee of a local glove factory, and the fifth a jack of all trades.

After completing the work at Henes Park, Foreman Kowatch moved to Escanaba and started work with a crew of five men on a tract of pine belonging to the city which is to be used for a park. These men were also chosen from a large list of unemployed. Although these men have been out of work for some time a few of them found the work and working conditions too hard and quit. The "working conditions" included a hot sun, poison ivy, mosquitoes, deer flies, black flies, and no-see-ums. ;

We had an unusual crew when we protected the pine on the Marquette State Prison grounds. The men were trustees at the prison with sentences ranging from 3 months to life for offenses from breaking and entering, to murder. These men were glad to get into the open despite working in a swamp where the insects were numerous and where it was very warm. They were willing workers and did a very good job.

* * * *

Blister rust knows no depression; pine owners are reluctant to effect control measures for want of funds; men are out of work and many are dependent on public funds; almost anyone can uproot bushes; why not have the depression help disease control instead of disease.

June 18, 1932.

John K. Kroeber, Michigan.

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BLISTER RUST NOTES FROM DISTRICT 6 IN NORTHERN NEW HAMPSHIRE

Found Ribes glandulosum leafing out on April 27th in this district. To my knowledge, this is the earliest that Ribes leaves have appeared in northern New Hampshire. Have one town in my district, Waterville, that cooperated for the first time since control methods were adopted. Waterville isn't considered a backward town but has always been classified as a non-pine town and for this reason no cooperation was ever requested. This year the voters made a voluntary appropriation to take care of the pine around the only hotel in the town.

Thomas L. Kane, N. H.

BLISTER RUST SHOWS UP ON MARTIN ESTATE NEAR GRAND RAPIDS, MICHIGAN

In 1922 this area was scouted and infection found on white pine imported from Ussy, France. Some eradication work was done at this time. Later in 1923 another infection was found and complete eradication of Ribes was undertaken by Mr. Dow Baxter who at that time was in charge of summer season field work in Michigan. Subsequent examinations of this area failed to disclose any new evidence of infection from the above dates until a short time ago.

Agents Fox and Thompson made an inspection a short time ago and found a branch canker of 1920 origin and a trunk canker of 1923 origin. The later canker had killed the tree. Further examination did not disclose any more infection on the pine on the estate or in the immediate vicinity. Nearest Ribes were within 150 feet of the infected pine. Scattered bushes of small size were found throughout the estate.

Mr. Martin was much concerned about this discovery and cooperated with us in removing all Ribes within the danger zone of his pine. In addition, an area of ten acres, recently planted to white pine by Mr. Martin, was protected.

The reason, no doubt, for lack of outbreak of disease was the prompt removal of bushes back in 1922 and 1923.

R. I. Thompson, Michigan.

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PENNSYLVANIA AND NEW JERSEY COOPERATE TO CHECK BLISTER RUST

R. P. Fatzinger and Paul B. Mott, State leaders in Pennsylvania and New Jersey, last Tuesday made an inspection of sources of blister rust infection on white pine in the vicinity of Washington Crossing Park, Bucks County.

The Pennsylvania side of the Delaware River is within the 1500-foot protective strip of the New Jersey State nursery at Washington Crossing. In order to prevent blister rust infection in this nursery it is necessary to eradicate the Ribes plants in the Pennsylvania area.

White pine seedlings planted near the Washington Crossing Park, Pennsylvania, in 1927, are infected with blister rust. It is hoped that the cooperative efforts of the two state leaders will result in the blister rust being stamped out in the neighborhood.

Extract from "The Service Letter," Pa. Dept. of Forests & Waters, June 16, 1932.

BLISTER RUST SITUATION IN THE WEST

Ribes eradication and control reconnaissance activities in Washington, Idaho and California during the 1932 field season will employ approximately 1,088 men concentrated in 45 camps.

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Doctor Barss and I returned yesterday from a very instructive trip to the Revelstoke region in British Columbia. The thing most impressive to me was the very black index finger of condemnation pointing to the cultivated black currant. On the old damage study plot just north of Revelstoke, where the black currants were removed several years ago, four of us were unable to locate any recent cankers. In the little valley about two miles southwest of Revelstoke, where black currants were still present, juvenile cankers were not hard to find. Throughout the trip we were able to see a direct association between the heavy infections and the cultivated black currants.

June 24, 1932.

Leslie N. Godding, Oregon.

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A summary of infection centers in the West at the end of 1931 showed 45 new pine infection centers located in Idaho, 2 in Washington and 1 in Oregon, none of which marked any spread to new regions. Ribes infections found in Washington and Oregon indicated no further extension of the rust.

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RIBES PLANTS NUMEROUS

W. M. Palmer, federal blister rust agent with headquarters at Montrose, Penn., while eradicating Ribes from a block of sixteen acres in Silver Lake Township, Susquehanna County, found a total of 1,845 plants. In the block were wild gooseberries, skunk currants, wild red currants, and cultivated red currants. Palmer reports that the total number of plants found in the block is not excessive, but it is unusual to find so many well distributed kinds in such a small area.

E. S. Radcliffe, forest officer at the Cook Forest Park, reports that a Ribes eradication crew working in the park destroyed 9,498 gooseberry plants in a block of only two acres.

Extract from "Service Letter," Pa. Dept. of Forests and Waters, June 16, 1932.

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An interesting and well written article by Wakelin McNeel entitled "On the Trail of Blister Rust - Menace to the Pines" is found on the Forest Page for Boys and Girls in the May, 1932, issue of American Forests.

A RED SQUIRREL CAUGHT IN THE ACT AT LAST

Last winter Northampton Water Works employees were pruning one of their white pine plantations. During lunch time one of the men saw a red squirrel eating the bark of a white pine. The squirrel became frightened occasionally, but always returned to the same pine. The observer was naturally curious to know why a squirrel would feed so consistently upon one tree. My attention was called to the tree this spring and there was plenty of evidence where the squirrel had been feeding on the canker. Aecia were abundant. The man then asked if this was the usual thing for squirrels to feed on infected pines. To my knowledge no one had actually seen this feeding taking place, and I told him that he had undoubtedly made an important discovery.

In my own experience where feeding has been plentiful, I have noticed the presence of red squirrels, but have never seen them feeding.

July 6, 1932.

R. E. Wheeler, Mass.

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PHENOLOGICAL NOTES

Massachusetts

First telial columns were noted on June 27 by Agent Doore on R. cynosbati in the town of Sheffield, in Berkshire County. This seemed to be a rather early date for the section this year, because of the belated liberation of aeciospores. On the same date, State Leader Perry, in company with Agent Roop, found the telial stage well in evidence on R. sativum in Boxford, Essex County.

C. C. Perry, Mass.

New York

Dr. R. R. Hirt writes on June 29th, "****This morning for the first time I found telia appearing on both Ribes nigrum and Ribes rotundifolium. Telial columns were not abundant as yet and those I saw were about twelve hours old, I believe."

Dr. Hirt is being assisted in his investigative work at Pack Forest, Warrensburg, by Messrs. Darrow and Lowe.

New Hampshire

Uredospores were late this year, first appearing June 7th. There seems to be very little infection on Ribes this summer due perhaps to rodent work and dry weather. Field men in my district have lost but one hour on account of rain since May 21st.

S. H. Boomer, N. H.

NEW HAMPSHIRE AGENT CONDUCTS SPECIAL INTERVIEWS IN EACH TOWN

During the spring weeks I interviewed town officials and leaders in each town in my district. The purpose of these interviews were fourfold: First, to get the reaction on work done in the town during the previous season or seasons; second, to find out what, in their opinion, could be done by the writer to assist in assuring the continuance of the blister rust control program; third, to discuss with the leaders and others the aesthetic value of white pine; fourth, to inform them in detail of the mapping of pine areas and the determination of future control areas. I secured much information of value to me and believe, from the reactions of those interviewed, that they were pleased at my having taken the matters up with them.

G. F. Richardson, Jr. N.H.

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PRUNING WHITE PINE OFFERS OPPORTUNITY

The present time offers an excellent opportunity to those owners of young white pine to benefit not only their own forest, but to help the unemployed. White pine stumpage is down; and for poor quality it is likely to remain down for sometime. Good clear pine, however, will always command a better price because of its quality. Pruning is necessary to secure good pine in the future.

The blister rust agents in their numerous contacts with pine owners might well suggest the possibilities of securing increased future revenue by pruning young white pine. At the same time they will be aiding in blister rust control particularly where the young stands are infected with this disease. In this connection a statement concerning pruning from Mr. Austin F. Hawes, State Forester of Connecticut will be appreciated. Mr. Hawes writes under date of July 6:

"We are pruning crop trees in our plantations as rapidly as they need it and we can get the money to do it. The unemployment appropriations have helped us out considerably in this regard, as we have now pruned, as high as a man can reach from the ground, about fifty acres. This pruning of selected trees costs, I think, about \$10.00 per acre, but the girdling of the worst trees which interfere with the crop trees adds considerable to the expense."

"The way we indicated the trees this winter was first to knock off the dead branches about every third row so that a man could go through comfortably with a pot of paint and spot the crop trees. Another man followed with an axe and blazed the weed trees that needed to come out to favor the crop trees. There was, of course, a third intermediate class which were not considered crop trees and were not pruned, but which were not girdled either. These will be left for subsequent thinnings with the idea that we can get some low grade material out of them. Of course, later on these plantations will be pruned higher with a stepladder, as we find it cheaper to use a ladder than a long pole saw."

R. G. Pierce

A HELPFUL STUDY ON BRINGING THROUGH CONIFEROUS UNDERPLANTINGS

Mr. Henry H. Tryon in Bulletin 3 (1932) of The Black Rock Forest, N. Y., has an interesting and instructive article entitled "A Study of Several Coniferous Underplantings in the Upper Hudson Highlands." White pine was one of the species studied. Mr. Tryon draws these conclusions:

Since the factors of age of stock, soil quality, site, precipitation and care in planting were about equal in all cases, it is evident that the height growth of coniferous underplantings of the species listed herein is in direct inverse ratio to the amount of overhead shade, coupled with the soil conditions and root competition involved thereby. * * * *

Coniferous underplantings of the species discussed in this study cannot, in the Hudson Highlands, be successfully brought to maturity without subsequent cultural treatment which will in due time admit sufficient sunlight to the plantation.

Edit: To those who are interested in changing a hardwood stand to a coniferous one, or bringing through conifers under hardwood, a perusal of this bulletin would be valuable. It is copiously illustrated. The species studied include Norway Spruce, Sitka Spruce, Norway Pine, White Pine and Scotch Pine, American larch, balsam fir, silver fir and Douglas fir.

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CANADA GOOSEBERRY (RIBES OXYACANTHOIDES L.) DISCOVERED IN WISCONSIN

Mr. T. F. Kouba discovered the Canada gooseberry at Wisconsin Point, a peninsula northeast of Superior Wisconsin on June 11, 1932. It was identified by a Wisconsin professor and Dr. F. V. Coville of the Division of Botany at Washington. As far as known this is the first time that this species has been found in Wisconsin. This oxyacanthoides is not the species as used by Gray which included the wedgeleaf gooseberry, Ribes hirtellum, and which extended from Newfoundland and Maine to North Dakota and Manitoba. The Canada gooseberry has a much more restricted distribution, being hitherto reported in this country only from Michigan, Minnesota, North Dakota and Montana.

R. G. Pierce.

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NEWS LETTER REDUCED IN SIZE

On account of the need for economy it has been necessary to reduce the size of mimeographed News Letters. The Blister Rust News has been reduced to 9 sheets.

SECOND NEW BLISTER RUST ROADSIDE DEMONSTRATION
PLACED IN NEW YORK THIS YEAR

Makes 8 Demonstrations now in State

All located on well traveled roads and well
distributed throughout pine growing
regions of State.

The first of July saw the placing of another Blister Rust Roadside Demonstration in New York this year. This new demonstration is located on the south side of the road traveling east between West Stephentown and Stephentown Center in Rensselaer County about 8 miles from the Massachusetts line. This demonstration will be known as the West Stephentown Area. The signs and posters placed on this area are similar to those placed on the other areas which were mentioned in the June Blister Rust News. The signs, however, are somewhat larger than any of the others that were placed and it is our intentions to increase the size of all our signs another year.

This new area gives us a demonstration in a section of the State where we have never had a Roadside Demonstration before. It is also the first one placed anywhere east of the Hudson River Valley in this State. There is considerable travel over this road, especially over week ends and should prove of value in blister rust cooperation in this part of the State as well as informing our Massachusetts friends of the danger of blister rust when they pay our State a visit over the week end. All of the demonstrations were placed with the consent of the landowners.

Geo. E. Stevens, N. Y.

P U B L I C A T I O N S

White Pine

Stevens, C. L. "Root Growth of White Pine (Pinus strobus L.)." Yale Univ. School Forestry Bul. 32 (1931). pp. 62, pls. 6, figs. 8.

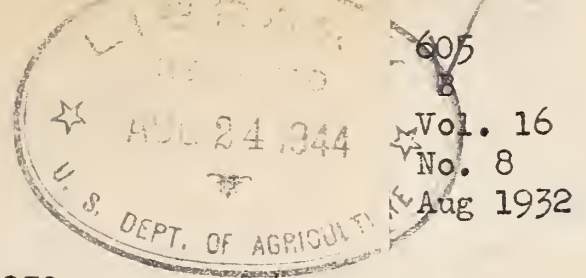
In this study, carried on jointly by the New Hampshire Experiment Station and the Yale University School of Forestry, periodic measurements were made throughout two growing seasons to determine the rate of growth of lateral roots of 4 to 6-year-old field-grown white pines.

There were two periods of rapid growth in the open, namely, in spring and autumn. There was no apparent correlation between the amount of root growth and the amount of top growth, but in general trees with vigorous tops possessed rapidly growing root systems and vice versa.

Practical deductions are that failures in plantations should not be replaced later than one year after the trees were set, and that in replacing the stock used should be of the same age as that of the surviving trees. Planting up natural openings in the forest is seldom worth the expense. For 4-year-old white pines set 6 by 6 ft. apart on sandy soil root competition may be expected within 5 years after planting, while on clay competition may be delayed until the tenth year.

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Vol. 16



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August, 1932

THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and Cooperating States.

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U. S. Department of Agriculture
Bureau of Plant Industry
Division of Blister Rust Control
Washington, D. C.

CRCNARTIUM RIBICOLA FISCH.

By René Pomerleau

Extract from "Observations sur les Rouilles des Arbres et Arbustes du Quebec" in Le Naturaliste Canadian for March, 1932. Translated by Roy G. Pierce, Division of Blister Rust Control, August 1, 1932.

These notes and observations upon the distribution of the tree rusts in Quebec would not be complete if we did not add a short succinct résumé of the actual state of affairs of the blister rust in this province.

The blister rust of the white pine has been observed here for a long time but nothing has been attempted up to the present of a serious nature to learn its importance and to remedy its evil effects. In the course of the last summer the Department of Lands and Forests of this Province has organized a survey charged with determining the extent of damage caused by this disease and of locating in a certain radius the stands of white pine in order to make effectual the work of eradication in the years to come.

We have thus scouted throughout the counties of Maskinongé, Berthier, Joliette, Montcalm, L'Assomption, Richelieu, Deux Montagnes and Argenteuil almost to the limit of private property without touching the lands leased by the Crown. In almost all of the pine lands the blister rust has been observed and in a particular instance it has been established that 20% of the trees at least carry from one to several cankers. However, the average of infected individuals is from 1 to 7%. The mean age of cankers varies from 3 to 7 years, that is to say that the oldest infection originated in 1924-1925, and the majority date from 1926-1927. As yet very few pines have died from the blister rust but many have been partially attacked. We have frequently encountered trees bearing cankers sufficiently developed to cause the death of the crown and sometimes the crowns have even fallen because of breaks taking place at the center of the canker.

In general the infections are not very old in this part of the Province which explains why damage is not more apparent in the natural stands.

The bushes of the genus *Ribes* which transmit this disease to the white pines are frequent and the entire forested country contains a fairly good number of them, from about 5 to 15 bushes to the acre. The species which is most widespread is without doubt *Ribes glandulosum* upon which the rust is almost always found. Next follows the *R. cynosbati* which is also widespread and is susceptible to attack. *Ribes triste* var. *albinervum* is equally numerous and almost always infected by rust. *Ribes lacustre* is less abundant but its susceptibility is equal to the preceding. *R. americanum* which occupies a preponderant place along the rivers and water courses, particularly in localities along the St. Lawrence, is frequently attacked by the rust; this last species is cultivated as a bush fruit. The other *Ribes* such as *R. hirtellum* and *R. oxycanthoides* are less common in this region.

Ribes nigrum cultivated by farmers and small gardeners is an important factor in the distribution of the rust, and we note that the majority of the leaves are covered with spores during the month of August.

R. grossularia and *vulgare*, perhaps more generally cultivated than the preceding, are less susceptible to attack by the rust. For example, in gardens

where R. nigrum is found very heavily infected it is difficult to find the tiny spots (of the rust) upon R. grossularia and they are still fewer upon R. vulgare.

Some very interesting observations have also been made in other parts of the Province upon the extent of this epidemic. Thus in a plantation situated on Lac Cache in the County of Terrebonne more than 50% of the planted pines are severely attacked by the rust and almost all the others are in a dying condition because of the incredible abundance of Ribes in the vicinity. Ribes have made this extraordinary development probably following a forest fire. It is known as a fact that a forest fire brings about sufficient disturbances to unlock the germination of plant seeds embedded in the forest floor. (1)

An eradication project commenced in this plantation has since been abandoned for the Ribes there were too numerous, ranging from 600 to 800 bushes per acre.

To complete the information upon the distribution of the rust some abstracts of inspection are given for the natural stands in the Crown domain. On the Montagne Tremblante in a stand of 250 acres containing about 20% of white pines, almost 45% of pines less than 10 years of age bear infections and many aged individuals are severely attacked. On the other hand, in a leased forest situated near the Gatineau River inspection has not revealed the presence of the rust on pines or Ribes.

Some tentative eradication of Ribes has been done this last season in Quebec. The most important work, however, has been carried on at the provincial nursery at Berthierville where the blister rust is a grave menace to the cause of reforestation. In this latter locality protection of the white pines against the rust has been done thoroughly and systematically.

In short, the blister rust exists in probably all the regions inhabited along the St. Lawrence and Ottawa Rivers where the majority of old cankers seem to date from 1926 or 1927.

(1) Fivaz, A. E. Longevity and Germination of Seeds of Ribes, Particularly R. rotundifolium, under Laboratory and Natural Conditions. U. S. Dept. of Agric. Tech. Bul. No. 261.

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REPORTING FOREST PRACTICES

Last year, Mr. Parmenter, the Extension Forester for Massachusetts, inaugurated a card record system by the use of which he hoped to obtain a better idea of the extent to which the simpler principles of forest management were being practiced by the forest owners in the State. During the Ribes eradication thus far this year, we have come in contact with eleven owners in the Berkshire District who have been doing improvement work in the white pine stands which we were protecting. The eleven owners have pruned 106 acres and thinned 55 acres. The practice of weeding seems to have been neglected, however, as only one owner reported any activity along this line. The special report cards pertaining to these lots are forwarded to the Extension Forester through the Office of our State Blister Rust Control Leader.

BLISTER RUST INSPECTION TRIP ARRANGED FOR MINNESOTA
ARROWHEAD ASSOCIATION.

On July 15th, under the direction of Mr. L. B. Ritter, a very instructive trip was taken by the Forestry Committee of the Minnesota Arrowhead Association in the Woodland area of Duluth and the town of Gnesen. A report of the tour was printed in the Duluth Herald of July 15th. Mr. Ritter furnished a 5-page mimeographed folder for those taking the tour. The folder explained the origin of the blister rust, its entrance into Minnesota, its manner of spreading, appearance and the methods of control. Two pages were devoted to a description of the lots seen on the tour.

For those agents who have never had a blister rust demonstration tour, a perusal of Mr. Ritter's folder would be of value. Mr. Ritter is being requested to send a copy of his folder to each of the Eastern State Leaders.

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FEDERAL FIRST AID KIT PROVES OF VALUE

The Federal first aid kit did its duty recently when called upon for help. Enroute to Superior, Wisconsin, where I was expecting to work with an eradication crew composed of unemployed men in that city I came upon two cars that had collided. Not only had they collided but rolled over, and strewn about among the debris were seven people. Two were in a serious condition, losing blood rapidly, and here the first aid kit did some rapid work before the people were rushed on into hospitals in nearby towns as soon as cars could be loaded with them. The kit probably helped to save two lives; merely further evidence of the value of the Federal first aid kit.

T. F. Kouba, Wisconsin.

Edit: This matter is being brought to your attention since it is likely that some of the agents are not equipped with the first aid kits supplied by the Department. Those not having them should write to the Property Clerk, Division of Blister Rust Control, for their kit. While the above kit was used for an outsider it is likely that the next one will be needed for rendering first aid to our own men.

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BLISTER RUST NOTES FROM NEW YORK

Blister Rust at Ashokan Reservoir Brought to Court's Attention

A recent hearing with the several towns in Ulster County and the City of New York regarding a more equitable equalization of assessed values on the Ashokan Reservoir property, the question was brought up of the value of the extensive plantations around the reservoir. The question of whether they were in a good healthy condition was asked, to which the gentleman on the stand for the City replied not altogether so since the pines were rather heavily infested with the white pine weevil and also had been attacked by the blister rust. This is the writer's first knowledge of the depreciating effect of blister rust on a pine stand ever having been brought to a court's attention.

Does Dust Prevent Infection on Ribes?

In a section of Ulster County where infection was showing up generally on Ribes, several lusty cultivated gooseberry bushes were growing close to the highway. This highway is a dirt road which bears heavy traffic through the summer months due to the summer boarders, and consequently gets very dusty at times. The gooseberries were loaded with dust when the inspection was made. No infection could be found on them whereas just across the road back in the field a short distance some cultivated red currants were growing clean of dust, but were heavily infected. I am wondering if the dust had anything to do in preventing infection on these gooseberries.

H. G. Strait, N. Y.

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WISCONSIN FOREMAN FINDS WEAK PARASITE ON PINE

Mr. Kouba recently sent into this Office a specimen of white pine collected at McNaughton Lake, Oneida County, Wisconsin, by Mr. Cleasby, a blister rust foreman. As this specimen of pine was apparently infected by some parasitic fungus, it was referred for examination and identification to the Division of Forest Pathology, who have replied as follows:

"The cankers around the nodes bear an abundance of fruiting bodies of Coccomyces pini. This fungus is usually considered a weak parasite and in this case may have infected the pine through branch stubs. It seems to be causing considerable injury. Infection by a species of Cytospora has apparently followed the Coccomyces. The fruiting bodies of the Cytospora were present in the bark beyond the limits of the Coccomyces cankers."

Edit: Wisconsin is to be congratulated upon having a foreman who is not only interested in the protection of the pine from blister rust, but is also interested in other pine diseases. It is hoped that other foremen will be on the lookout for interesting news concerning the blister rust or its host plants.

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REMARKABLE WHITE PINE GROWTHS IN DISTRICT #8, NEW YORK

I recently spent some time in the field with Mr. Carleton Virkler, President of the Lewis County Forestry Council. During the course of our travels we visited one of Mr. Virkler's white pine plantations. I was very much taken by the size and fine thrifty condition of this particular plantation, which is located in the township of Croghan, Lewis County. The plantation was made in 1911 with 3-year stock. I was so impressed with what I saw that I decided to take a few measurements; measurements which I dare say will rank well up among the top notchers in individual white pine growths in the Northeast. We found many fine diameter measurements ranging between 8 and 10 inches D.B.H. The prize tree, however, had a D.B.H. of 11 inches and measured 12½ inches above the butt swell. The best height growths we found were made during the 1918 growing season, many trees being found that had made height growths between 36 inches and 40 inches during that season. We found, however, that our prize tree for height growth had stretched upward for a total of 21½ inches in a single season.

T. P. Wołoschlagor, N. Y.

DIVISION OF BLISTER RUST CONTROL HELPS UNEMPLOYMENT IN MICHIGAN
STAGGER SYSTEM USED

Mr. John K. Kroeber, blister rust agent in the Upper Peninsula of Michigan, has been utilizing the depression to aid blister rust control. Readers of the News will remember his article on "The Unemployed Used in Ribes Eradication in the Upper Peninsula of Michigan" which appeared in the July number of the Blister Rust News. The Upper Peninsula Development Bureau of Michigan has been cooperating closely with Mr. Kroeber in securing cooperation in the various towns of his district. A letter from the Secretary-Manager of the Development Bureau to each of 101 town supervisors in the district, requesting their cooperation in preserving their white pine stands, and enclosing a copy of Mr. Kroeber's letter to the Bureau explaining the situation, has resulted in securing considerable attention to our control work. Extracts from Mr. Kroeber's letter concerning the protection of pine from the blister rust follow:

"Due to the present economic situation a great many pine owners have found it necessary to suspend this work of protection. Since the disease is already prevalent in the counties of Marquette, Dickinson, Menominee and Iron and threatens to attack pines in the neighboring counties, it is imperative that control measures be continued in order to safeguard the pine stands in these counties. We cannot afford to wait for better times to carry on the work of combating this disease but must do it at once. The pine belonging to counties and municipalities particularly in Marquette, Dickinson, Menominee and Delta Counties have already been protected. However, there are many privately owned stands which have not been protected and will not be because of the inability of the owners to hire labor. There is no doubt but the county as a whole profits financially and aesthetically by the presence of white pine areas. If the county authorities share this point of view and are willing to assist in controlling blister rust, may I put forth the following cooperative plan:

"It seems that there are a great many unemployed men in each county who are at the present time receiving county aid in the form of an outright dole or are working a few hours a week. Blister rust control is essentially the uprooting of currant and gooseberry bushes within 900 feet of pine, and anyone can do this work with no outlay for additional equipment. Our department will furnish the necessary supervision to train these men and supervise the work. We have already made inventories of white pine areas in Marquette, Dickinson, Delta and Menominee Counties and could begin work at once. Eradication crews consist of five men and a foreman. About two of these crews could be used in each county. The work can be carried on until about September 15th, after which the leaves fall from the bushes making it hard to find the bushes. The counties which we feel are in need of this work particularly are: Marquette, Delta, Dickinson and Menominee. We would like very much to get your attitude toward this plan and if favorable, your cooperation in presenting it to those in authority in the four counties mentioned."

Considerable work has already been lined up as the result of these circular letters. Mr. Kroeber in letter of August 2d to this Office, writes:

After these letters were sent to each Supervisor, Mr. H. N. Putnam and I interviewed the Supervisors in two counties. Later I addressed the Board of Supervisors in Marquette County, and it voted favorably on using unemployed

men for blister rust control and recommended that these men be taken care of through the County Road Commission and Poor Commission. After discussing the plan with the members of these commissions, we developed the following program:

Eleven men in all are to be hired for the remainder of the season. This includes one foreman and two crews of five men each. The foreman will be on full time. Beginning August 1st a crew of five men and the new foreman will go to work under the supervision of our Agent Don White. The crew will work Monday and Tuesday. Another five men will work Wednesday and Thursday, and this group will be replaced by still another five men Friday and Saturday. The following week the Monday and Tuesday crew will again work two days, and so on. In addition on the second week, the second group of five men will begin work and will work on the same plan. We have specified that we want able-bodied men between the ages of 18 and 45. These men are now dependent upon the county for food. However, instead of paying them in food and clothing, it was decided to pay them cash. In this way we believe the men will be more content, and the plan is more in keeping with their self respect. The men will be paid 32¢ an hour, and the foreman 36¢.

The "Stagger System" of employing men will be a bit awkward for us at first, but this is the plan used by the Road Commission in hiring the most men possible, and we believe it will work out all right after we get into the swing of it. In this way we help 31 men instead of only 11.

In Marquette County we will protect all pine areas we possibly can this season, irrespective of ownership; the Board of Supervisors having agreed that any pine area within the county is of benefit to the county, whether privately or publicly owned. In Delta County each township takes care of its unemployed. Two townships have already agreed to furnish men to protect the pine within their boundaries.

The other two counties, Dickinson and Menominee, have not been approached since the letters were sent them, but if the plan works well in Marquette and Delta, it probably will work in the other counties. Lack of time and supervision will keep us from doing work in all four counties this fall, but we hope to start with a bang next spring.

In the past, we have been asked to observe the prevalence of pine cones. I wish to say that I have never seen such a heavy crop of white pine cones as there is this year. Some of the branches are laden to the breaking point, and from all indications this will be a record white pine seed year. This goes for other species as well, particularly spruce.

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PUBLICATIONS

Blister Rust

Root, George A. "Progress of Preparedness for Protecting Sugar Pine Against Blister Rust". Monthly Bulletin of the Department of Agriculture, State of California, Feb.-March, 1932, p. 204-210.

White Pine

Deuber, C. G. "White Pine Blight", Proc. Nat. Shade Tree Conf. 7(1931): 97-100, 1932.

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WILD GOOSEBERRY BUSHES REMOVED FROM MAPLE TREES

Mr. E. G. Woodward, blister rust agent in Warren County, New York, sends in an interesting account of the finding of 8 gooseberry bushes in 5 maple trees. He writes:

On Monday, August 1st, Foreman Dan Hewitt removed 8 gooseberry bushes (Ribes rotundifolium) from 5 maple trees which extended about 5 rods along an old road. These bushes had a total of 90 feet of live stem and 2 of them were fruiting heavily and were beside and over planted white pine. To reach the bushes it took an extension ladder which had to be brought four miles on a truck and carried by hand almost a half mile.

Eradication Work in District #6 Making Good Progress

Eradication work is progressing well in this district (Dist. #6, Warren County, N. Y.) in spite of the depression. We are some hundred acres ahead of 1931 to date and hope to hold up an increase the balance of the season.

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1923 VERSUS 1932

Back in 1923 under S. D. Conner's supervision the Portland Water District carried on initial control work on their property at Sebago Lake. According to records they pulled 20,098 wild Ribes from 2,100 acres at a cost of \$558. This season we reworked their property, pulling 4,653 wild Ribes from approximately 300 acres (actual crew work) at a cost of \$295.20. As near as could be determined from the caretaker, the bulk of the bushes pulled this season were on property bought since 1923.

The original eradication appears to have been very well done. One member of the crew this year claims to have worked here in 1923. On one particular area he was sure he could find bushes. This area the scout had covered thoroughly and found nothing. The scout and myself made another attempt but failed to find said bushes. We finally decided to put the crew under the direction of this crew member and see what they could find. One half day was spent by the crew but they failed to find any Ribes. A large percentage of the Portland Water District's property was eliminated by the scout as being Ribes free.

G. H. Kimball, Maine.

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INFECTION ON BLACK CURRANTS FOUND IN TWO NEW COUNTIES IN WESTERN MICHIGAN

Infections on black currants have been recently found in Mason and Manistee Counties, thus adding to the growing list of counties already infected.

It is interesting to note that we have practically protected all the white pine in Mason County except some noted around Hamlin Lake and this is virtually Ribes-free. We now have a black currant crew at work removing bushes in this county, which will complete the protection work we have so far been able to carry out.

R. I. Thompson, Mich.

MIXED STANDS OF PINE AND HARDWOODS

In recent years many foresters have been urging timber land owners to avoid the establishment of pure types, particularly pure white pine. Such recommendations have been made for the purpose of avoiding, or reducing, soil deterioration, and to lessen the damage from insects such as the white pine weevil. A further reason, of course, has been to enhance the value of the timber in the final crop by improving the quality. While these recommendations are all well founded, they cannot be universally accepted and followed in all regions, and for various reasons.

One such reason that has come forcibly to our attention this summer in Massachusetts relates to damage by the gipsy moth. In sections of Plymouth County we have had renewed evidence of the damage this pest can do when uncontrolled. In the defoliated areas in many towns it has been completely demonstrated that whereas the white pine in pure stands has suffered practically no damage whatever, the pines that are growing in mixture with oaks have been completely defoliated. A mixed stand in this region is certainly the last objective that should be striven for; at least as long as oaks must be depended upon as a part of the mixture and we continue to have the gipsy moth to contend with.

August 8, 1932.

C. C. Perry, Mass.

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EFFECTIVENESS OF RIBES ERADICATION USING FOREMEN FROM
UNEMPLOYED LISTS IN WISCONSIN

In Shawano and Waupaca Counties, Wisconsin, white pine surveys were made last fall and winter. As a result of this work approximately 400 woodlot owners expressed a desire to have their white pine stands protected against blister rust. State funds were insufficient to pay for foremen to supervise these control jobs, and so State Leader Kouba in conference with Shawano County officials devised the following plan which is now in use:

The best men available from the county unemployed lists, one from each of 6 townships, were selected. Each man received \$1.00 per day plus gas and oil for his car from the State, and \$1.00 equivalent per day in food from the county. After a thorough course of training these men act as foremen supervising the owners' labor in protecting privately owned pine stands. The entire project is under the immediate supervision of Agent Atkins, who visits each crew daily, checks on their work, arranges for new jobs, etc. I visited each crew, and met all of these men. The scheme is working out remarkably well. The men are cheerful, interested in their work, and giving a 9½ hour day on the job.

Kouba, Atkins and I checked on the effectiveness of work done on 8 of these jobs. Atkins chose some of the areas on which originally the largest number of bushes were found. We ran strips, usually in a horseshoe shape, through each area, pacing the distance in chains, and recording all Ribes found on a strip 13.2 feet wide. Each chain segment represented 20 milacres or .02 of an acre. The results are shown in the following table:

Property	Character of Stand	Eradication Work			Checking, July 30, Aug. 2, 3, 1932					
		Date Performed	Ribes per Acre Number of Bushes	Calculated F.L.S.	Acres in Check	Ribes per Acre Species	Number of Bushes	F.L.S.	Aver. F.L.S. per Bush	Type of Bushes
A	W.P.-Hdwds Loam	1st 5/4-12	810	16,200						75% Sdls.
		2nd 7/26	75	800						
		Total	885	17,000	1.40	R. cyn.	21.0	17.5	0.8	Crowns left
B	W.P.-Jack P Poplar Sandy	5/13-19								
			36	720	1.40	R. cyn.	1.4	3.9	2.7	Crowns left
C	W.P.-Poplar Light Soil	5/27-28								
			18	360	1.00	R. cyn.	2.0	4.5	2.3	Missed
D	W.P.-Poplar Light Soil Portion Swampy	5/28-30				R. cyn.	5.0	9.4	1.9	
			80	1,600	1.00	R. triste	1.0	2.0	2.0	
						Total	6.0	11.4		Crowns left
E	W.P.-Hdwds Loam	5/28-6/8								" "
			300	6,000	1.00	R. cyn.	24.0	31.4	1.3	Missed Seedlings
F	W.P.-Hdwds Loam	6/4								50% Sdls.
			150	3,000	2.00	R. cyn.	6.5	3.7	0.6	Crowns left
G	W.P.-Hdwds Loam	6/6-8								Mostly Missed
			100	2,000	1.25	R. cyn.	3.2	8.0	2.5	
H	W.P.-Hdwds Loam. Next to River					R. cyn.	4.5	4.6	1.0	Crowns left
		6/14-16				R. am.	2.0	1.5	0.8	Missed
			75	1,500	2.00	Total	6.5	6.1		Seedlings

In calculating the feet of live stem of pulled bushes, an average of 20 F.L.S. per bush was taken. This factor was based on observations of sizes of bushes pulled, and of bushes on unprotected areas. It is apparent from the table that those areas of white pine-hardwoods, where the soil was loam produced the largest number of bushes per acre. All of these 8 areas had white pines 61 to 100 years of age. In many of them young white pines were abundant.

Based on either the number of bushes or total feet of live stem, crew efficiency was high. In general those areas from which the largest amounts of Ribes were removed showed the most Ribes in the checks. Most of the Ribes found in the checks were of sizes close to the averages shown. In only one case was a large missed bush found. This was a R. americanum and had 10 feet of live stem. It was considered that satisfactory protection had been afforded to 7 of the 8 areas checked. Property "E" will be done over this year.

In view of the fact that foremen from the unemployed lists without previous eradication experience, and inexperienced farm labor were used, the results of their eradication efforts were surprisingly good. This method of performing control in the Lake States shows promise of being an effective way of handling the problem in the future. Its success, of course, is dependent largely upon the agent immediately in charge. Atkins is certainly to be congratulated upon his successful use of this type of foremen.

PRISON LABOR USED IN ERADICATING RIBES IN ONEIDA COUNTY, WISCONSIN

At the McNaughton State Prison Camp, Oneida County, Wisconsin, a group of 20 prisoners is being used to eradicate Ribes from State land in Oneida County. These men are a part of a contingent of 54 prisoners engaged in reforestation work, the men having already planted one and a quarter million trees near their camp during the spring.

The 20 Ribes eradicators work under State guard and under the immediate direction of a State blister rust foreman. These prisoners prefer the eradication work to tree planting and are not difficult for the foreman to manage, although this group has the reputation of being obstinate. They refuse to take any orders from each other, therefore, their own men cannot act as checkers and the State foreman has to work the group as a whole. If prisoners are used at all as checkers they cannot order any men back to get bushes missed, but simply check by pulling out bushes as they go.

One man volunteered to stick up paper for the paper trail as he jokingly remarked that "stick up" work had been his business before he entered prison.

The crew has covered about 1,100 acres, eliminating no ground because Ribes, although not particularly abundant, occur generally in that county.

August 3, 1932.

T. F. Kouba, Wis.

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BLISTER RUST DEMONSTRATION AREA IN RENSSELAER COUNTY,
N. Y. ATTRACTS ATTENTION.

During the latter part of June a blister rust demonstration area was established in Rensselaer County in the town of Stephentown within sight of the State Office Building at Albany. This area is attracting considerable attention, not only from those living in the county but from many in other parts of the State, and also from Massachusetts since the area is located on one of the main routes of travel into that state.

While I was on this area one afternoon a short time ago replacing some of the tags which had been blown from the trees, five cars stopped in the course of two hours. Parties in two of the cars were interested enough to get out and go through the area even though it was quite wet from a recent rain, while the occupants of one of the other cars helped themselves to the blister rust bulletins from the stand by the road.

Among the residents of the county the area is even better known and I am getting quite accustomed to answering the question, "Are you the one who put the yellow tags on all those trees near Stephentown?".

H. J. McCasland, N. Y.

JULY IN MASSACHUSETTS

In Massachusetts we had another splendid month in which to eradicate Ribes. The usual farm tasks, such as haying, weeding, etc., once again materially interfered with our efforts to secure cooperation from local pine owners. In recent years, however, we have endeavored to offset this difficulty by so planning our work that after July 1st we can devote some of our efforts to black currant eradication work. Such was our procedure again this season; at least in the two major districts in which this work has not already been completed. In the regular eradication work we were able to secure 3,300 hours of cooperation from local owners on 200 projects. This time was expended in clearing 61,000 wild and 760 cultivated Ribes from 47,000 acres of land. Black currant location and eradication work was in progress in 12 towns. In 125 locations, black currant bushes were found. These plantings contained 625 bushes, 296 of which were eradicated at the time of the initial inspection.

July observations of a casual nature indicate that weevil damage, at least in many sections of Massachusetts, will probably reach a "new low" this season. It would appear that it might have been worth while for the proper authorities to broadcast the suggestion that it might be well for pine owners to make a very special effort this season to cut off and destroy the infested tips before August 15th and thus further reduce the weevil population. The cost of such work this year would be low as compared with other seasons and the results might be suprising.

Damage resulting from the progress of the willow scab is again in evidence in southern Berkshire County with a center of optimum damage in the town of Stockbridge. The authorities in that town will, within a few years, be faced with the problem of clearing the roadsides of dead willows. It is only within a few years that our Massachusetts town authorities have finished the task of clearing the roadsides of dead chestnuts and now we may have another similar task, but one that will not be as general because of the limited distribution of the species as compared with the chestnut.

Infection on Ribes during the month continued to be heavier than was expected, particularly in view of the fact that drought conditions prevailed quite generally throughout the State and particularly east of Worcester County. The Boston office of the Weather Bureau reported that only three-fourths the average July rainfall was recorded. This deficiency of precipitation, coupled with a daily excess of more than one degree of temperature above the normal, resulted in a record-breaking dry spell. Fortunately, other sections of Massachusetts received the benefit of occasional showers.

August 9, 1932.

C. C. Perry, Mass.

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Mr. Roy G. Pierce has recently been placed in charge of the work in the Southern Appalachian District. He is cooperating with the various State officials in the white pine growing States south of Pennsylvania and the Ohio River. We wish him success in his new work.

TIPS ON FIELD DEMONSTRATIONS

Recently a forester who had been a member of a party given a field demonstration of disease and damage by a control agent discussed his impressions of the demonstration. Two points developed by his discussion should help us to improve our efforts in this type of educational work.

The party drove a considerable number of miles through white pine country to reach the demonstration area, giving some of its members, at least, the impression that blister rust infection and damage are not widespread. Then, when in the field, the destructiveness of the disease to young reproduction was not adequately demonstrated because much of the infected growth had disappeared without trace.

It seems hardly necessary to outline the means for preventing anyone from getting the first of the impressions listed. When the area you want your guests to see is some distance away it would be better to stop frequently enroute to show them diseased and damaged trees along the roadside than to concentrate the entire trip on the best area. If, because of short period of exposure, of Ribes eradication, or of natural scarcity of Ribes, the roadside stands seen are lightly or not infected, a few stops to emphasize this point will add much to the ultimate damage demonstration by comparison. To all your guests except the owner of the demonstration area itself the distribution and effect of the disease throughout the countryside may be as important as its intensity in the demonstration area itself.

It is admittedly difficult to demonstrate adequately the tremendous destruction of small reproduction by blister rust because small diseased pines are usually inconspicuous and disappear rapidly. One of the most striking demonstrations of damage to young reproduction that I have seen was on the Horicon, New York, infection area, when it was first shown to me by Agent Woodward. The effect of blister rust was impressive on the trees present but there was practically no reproduction to examine for blister rust. I was told that blister rust was the reason for this lack of reproduction but was skeptical until the "Major" led me to a number of small stakes. Two years before he told me he had staked a number of pine seedlings that were succumbing to the rust, and there were the stakes to prove his story and the fact that the reproduction had occurred and had been wiped out by the blister rust. The impressiveness of this simple demonstration was great and the method can be used by other control agents in their field demonstrations. There are few districts where the agent cannot locate a number of small plots in unprotected, young pine reproduction, and prepare this year one or more valuable demonstration areas to show by permanent markers the destructiveness of the disease among seedling pines. Straight-grained, sawed, seasonal, softwood stakes, $1\frac{1}{2}$ to 2 inches square, painted white, and long enough so that their tops will be readily seen above the ground cover after they are in place, make satisfactory markers that will last for several years. A supply of unused ones can be cached in a nearby tree so that replacements may be made promptly when found necessary.

One plot should be located as near headquarters as possible so that it may be reached quickly and kept under observation. If native reproduction

is absent, a plantation of a hundred 2-1 or 2-2 white pine transplants on a site where large infected Ribes will remain for at least 6 or 8 years should provide a demonstration plot in three or four years' time. The trees may be spaced 3 x 3 feet and should be planted carefully to get maximum survival. They must be examined at least once a year and those found diseased staked immediately. It is, of course, of great importance to select a planting site where the quantity, distribution, and permanency of Ribes are such that heavy annual pine infection will be assured. In fact, pines of this size shall be planted right among Ribes of dangerous size to make sure of early infection. In connection with this plot which is permitted to become diseased for demonstration purposes there should be a similar plot planted at the same time under similar Ribes conditions at time of planting, but where the Ribes are all removed before midsummer of the year of planting. This plot will serve as a check on the other and will be valuable in demonstrating that blister rust can be controlled even in a heavily infected region.

A. E. Fivaz

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BLISTER RUST COOPERATION GOOD IN MAINE

Mr. W. O. Frost under date of August 1, writes:

"Last Saturday afternoon Agent Bradbury and I attended a meeting of the Alamoosook Protective Association, Orland, Maine, - a group of cottage owners around a lake of same name - relative to blister rust protection. I gave a talk, followed by Bradbury. They raised \$300; the State now adds \$150. Within a few days crew work will start, using up the \$450. Agent Lambert will probably do the scouting and supervision.

"We are experiencing the best season ever, securing the most town and private cooperation yet."

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An editorial appearing in the Sunday Telegram and Press Herald of Portland, Maine, for July 31, shows that the State press believes in carrying on the control work. Quoting from this editorial:

"War on white pine blister rust is still being waged in Maine as has been for many years. It has never been possible wholly to eradicate the disease and the best that has been done is to check its spread. Both State and Federal government are cooperating in this endeavor and the Kennebec Journal notes that crews of men have been at work in that city lately."

The article goes on to inform the public of the two hosts and of the destruction of currants and gooseberries within 900 feet of the pine.

"For another thing it is not enough to cut the bushes down. They must be pulled up by the roots and burned. This is rather a hard job as may be seen, and it requires strength and persistence.

"A few years ago the blister rust got a strong hold in York and southern Oxford Counties. The heroic methods described were employed there and the disease gotten rid of. But it keeps on appearing and the only way to save the pines is to continue it as is being done."

BLACK CURRANTS ERADICATED ON BEAVER ISLAND, CHARLEVOIX COUNTY, MICHIGAN

I have just come back from a trip to Big Beaver Island. We completed the eradication of black currants from the island and were pleased to note that we found no infection on either the white pine examined or the black currants. There is considerable white pine at the north end of the island, in and about St. James. The pine I should judge to be about 60 to 70 years old, with nice reproduction. I feel that the pine is amply protected, for Ribes are very scarce at this point. The southern part of the island contains mostly hardwoods and balsam, and cedar swamps. Here we found considerable hudsonianum, heavy and dense, and lacustre, very tall and heavily stalked.

R. I. Thompson, Mich.

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BLISTER RUST CONTROL WORK IN OSWEGO COUNTY, NEW YORK

The first control work in this county was started May 10, 1932, with two State foremen, and a week later another foreman was added to the force. The plan of work has been the same that has been carried out in other counties nearby, that is, one foreman was assigned to a township where systematic plantation inspection and European black currant elimination work was carried out. Although the Ribes population is much higher than was expected, we are hoping to cover twelve towns by the end of the eradication season.

The cooperation of the public has been very good in view of the fact that very little was known about the work and that in most of the county there was very little visible white pine. Newspaper writers throughout the county have been very willing to cooperate in printing blister rust news articles in the leading county papers. The State Park Commission was one of the first to cooperate in protecting their plantings at the Selkirk State Park. This is a great summer resort which is visited by thousands each year, and the Superintendent was very willing to furnish men on the control work. He has a good example there of the chestnut blight in the destruction of thousands of stately trees and did not want to see the white pine wiped out in a like manner. The county is also cooperating on the control work around their numerous plantations, which comprise nearly one million trees.

Blister rust damage is not very noticeable yet, due to the large number of young plantings, but in a few of the older plantations several infections have been found. In one plantation of 25 acres, made in 1924, blister rust has just about cleaned house (it will check up 80 or 90% damage). This is a very good example of what may happen to any young plantation if the Ribes population is large in the nearby environs and if eradication work is not carried out soon after planting.

A considerable amount of objection has been encountered in the removal of the European black currant, due somewhat to the fact that they are unable to see any white pine near where some of the bushes are removed. On several occasions owners have said that these bushes were growing wild, and in fact, several have been found apparently growing wild. One was found at the base of a large stump in an old sugar orchard and several have been found by crews while working in dense alder runs.

H. W. Holcomb, N. Y.

SEASON'S WORK WELL UNDER WAY

After the Town Meetings last March things did not look so hopeful for a successful season's work. The writer had the grand total of \$1,000 from 6 towns appropriating. However, after working further with the town fathers of Gardiner and South Portland, an additional \$500 was obtained, \$200 from Gardiner and \$300 from South Portland. The conditions prevalent in the remaining cities in the writer's district were such that an appropriation for blister rust control was out of the picture. Hence, \$1,500 appeared to be final, unless we could carry on through funds of the welfare organization. Two cities, Lewiston and Bath, in this district agreed to cooperate through their welfare funds. In Lewiston we had two crews for a ten week's period. The amount of welfare fund spent was \$905. In Bath one crew carried on for two months, spending \$345. At the present time, in one town a crew member is being supplied through the Poor Department, thus giving us a little additional credit in that town. To date, the writer has spent \$400 from private funds and has three additional jobs in view protecting pine on private property.

After all is said and done, the amount of available funds for control work has been considerably greater than last season. The season is fast drawing to an end. All eradication, I believe, will be finished by the last of August.

G. H. Kimball, Maine.

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BLISTER RUST ACTIVITIES IN DISTRICT 12, NEW YORK

The work in connection with the State Hewitt blister rust program is progressing very well. We find that with but a few exceptions, the District Foresters have used good judgement about where they have planted their white pine from the viewpoint of protecting them from blister rust. And this, of course, helps tremendously to speed up the eradication work and keep the costs down.

Most of the blister rust foremen which we have on the job this year were here in 1931 and their training and experience in covering these areas add to the efficiency of the work. Then in most instances, in the different districts, we have at least a part of the crew who worked a year ago.

We are carrying on work on several of the State parks in central New York and find that all the park officials are very willing to cooperate with us and are glad to know that we take sufficient interest in their plantations to call on them for this work and furnish them with a trained man for the eradication.

In Otsego and Chenango Counties, we are engaged in covering the townships systematically and as fast as possible on private plantation work and black currant eradication. Several cities in this section have expressed a desire to have the white pine on their watersheds protected from blister rust, which we plan to do.

N. H. Harpp, N. Y.

BLISTER RUST WINDOW DISPLAY AT GREAT BARRINGTON,
MASSACHUSETTS, BRINGS RESULTS.

The display described in the following newspaper item from the Berkshire Courier of July 14, 1932, proved to be one of the most successful we have set up. Although during the three hour period on Saturday only ten interviews were made and but two persons called for specimens of infected pine and samples of Ribes, yet there have been telephone calls almost daily since the removal of the exhibit, requesting literature and samples. The entire display including our stereomograph was moved to the town of Monterey and set up in a pine area where a field meeting and demonstration were held the following Monday. The request for the field meeting came as a direct result of the window display. Sixty persons were present at this demonstration.

"To Identify Blister Rust.

"A demonstration of the white pine blister rust may be seen in the show window of the F. H. Turner hardware store in Great Barrington during the remainder of this week only. There will be no better opportunity to learn how to identify the rust on pine and on currant and gooseberry bushes than at this display. The forest, so to speak, has been brought to your front door where you may inspect it at your leisure. Several white pines recently brought in from the woods show large cankers on the stem or trunk of the trees. These cankers originated some years ago and are easily identified. Younger cankers on the branches may also be seen, but the younger the infection the harder it is to identify. However, a close examination of these specimens will enable one to pick up similar cankers in the pine woods.

Infection on pine is quite general throughout the southern part of Berkshire County, so that even the layman should not experience much difficulty in locating diseased trees. Our chief concern is not so much with the trees already infected as with the wild and cultivated currant and gooseberry bushes now growing within infecting distances of the white pine. These bushes are the one big factor with which we must deal if the disease is to be held under control.

Infected leaves of practically every species of currant and gooseberry that grow naturally in the county may be seen at the display. These leaves show the two main stages of the development of the rust on Ribes. There is also one small gooseberry bush showing infection as it appears at this time of the year. The bush is growing under a large glass jar just inside the store at the rear of the display. All bushes are identified by the shape of their leaves so that one or two specimens of each bush serve the purpose of identification as well as a hundred. Infected leaves or samples of diseased pine will be furnished free upon request. Inspection of pine lots will be made without charge. G. Stanley Doore, blister rust control agent, U.S.D.A., will be at the Turner hardware store Saturday, July 16, from 9 a. m. until noon to answer questions concerning the rust and methods of control."

G. Stanley Doore, Mass.

WHITE PINES GROW ON SAND

Not far from Greenville in Western Michigan there is a planting known as the Ranney-Belding Plantation composed approximately of 70% white pine and 30% Norway pine, each species pure in blocks. The trees are spaced six feet apart in rows spaced six feet. Seven or eight whorls of branches are present so it is judged that the entire plantation of 40 acres is 10 years old. The soil is nearly pure sand, so light that the only ground cover is grass and in places there is no vegetation.

On July 1, 1932, R. I. Thompson and I examined the plantation. We selected a row at random and measured the height of every pine in it. The following table shows the results of these measurements.

Height Growth of Pines in One Row, Ranney-Belding
Plantation near Greenville, Mich., July 1, 1932.

Height Class (feet)	Number of Trees	
	White Pine	Norway Pine
1.1-2.0	1	0
2.1-3.0	5	0
3.1-4.0	11	1
4.1-5.0	17	5
5.1-6.0	17	13
6.1-7.0	24	13
7.1-8.0	18	7
8.1-9.0	13	2
9.1-10.0	1	1
10.1-11.0	3	0
Totals	110	42

There were 12 of the 110 white pines, or approximately 11% of them believed to have been weeviled. The average heights of the white pines were 4.3 feet for weeviled trees, 6.3 for healthy trees, and 6.0 feet for all trees. The average height for the Norway pines was 6.2 feet. From the table it is evident that the Norway pines showed a more uniform growth, the majority falling within the 5.1 to 7.0 height classes than did the white pines, the majority of which ranged in height from 4.1 feet to 9.0 feet. When it is remembered that a light, sandy soil, with no shade and only a sparse cover of grass is not considered a good white pine planting site, the growth of these white pines is worthy of note.

Ribes around this plantation were very scarce. No Ribes were found on the plantation itself. On the east edge a few were found which can be taken care of quite easily by a crew. This pine plantation has not yet been protected but undoubtedly Agent Thompson will arrange for its protection with the owner before long. We made a preeradication survey of the job and the cost of protection will not be excessive. A crew of 3 men will undoubtedly protect it in one day.

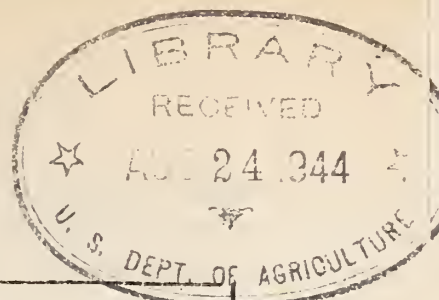
Who says that white pine will not do well on sandy soil in the open?

H. N. Putnam, Wis.

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VOL. 16

September, 1932



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Sept 1932

THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and the Cooperating States.

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U. S. Department of Agriculture
Bureau of Plant Industry
Division of Blister Rust Control
Washington, D. C.

CONTROL WORK IN ILLINOIS

Control work is progressing very nicely on ex-Governor Lowden's estate and at the Pines State Park, both near Oregon, Illinois. Work was started on the Lowden estate last Wednesday with a crew of 5 men and a foreman. I worked with them steadily all day, kept them in line, showed the foreman how to check back of the line, etc. The following day I broke in a crew of men at the Pines State Park. There we had a crew of 5 men and a foreman. I have been spending my time between these 2 crews all of last week.

These jobs are about the toughest I have seen in the Lake States. Ribes missouriense bushes are large and abundant. In fact, in spots these Missouri gooseberries are the most abundant species in the ground cover.

We are using strips of red muslin instead of paper to mark the trail. I adopted this idea from Atkins in Wisconsin. It is much more successful than paper, being visible for some distance. It is particularly important on the 2 control jobs in Illinois since it is essential that no paper be left on the ground following our work.

The work has not progressed far enough to be summarized but the bushes are very numerous and will run one or more thousand per acre - large bushes. It is difficult to get all the bushes, particularly at this time of year and many of the smaller bushes have lost nearly if not all of their leaves. These areas will need to be checked next spring. I have been getting very excellent cooperation from the State of Illinois.

New Tool Devised for Pulling Ribes

Mr. H. T. Scott, Superintendent of the Pines State Park has in previous years been doing a considerable amount of eradication of Ribes in the park. His object was to clear a space for a tourist camp. To do this he pulled these bushes by means of a chain and a team of horses attached to a two wheel truck. The bushes were so thick that it was difficult to remove the pulled bushes far enough away so they would not interfere with pulling other bushes. These Ribes grow very large and are very thorny. To throw a chain around the base of one of these bushes was a job that necessitated a considerable danger from scratching. To get around this difficulty Mr. Scott, who has an inventive turn of mind, devised a tool for putting the chain around the bush. This tool consists of an iron bar one-half inch in diameter and about four feet long. One end is shaped into a hook, sharpened and pointing at 45 degrees from the handle. The hook is perhaps $2\frac{1}{2}$ or 3 inches across. The handle is made of steel, bent around, flattened and closed, and lying in the same plane with the hook.

This tool makes an ideal one for actually pulling the Missouri gooseberry bushes. On the large bushes two or three men can get a good hold at the crown with these tools and the bushes come up quite easily. On the very large bushes the men work around the base of the crown, pulling up the roots. The handle is long enough so that the danger of being hurt from the thorns is not great. I have had one of these tools made for my own use and as a sample. I showed it to the men working on the Lowden estate and they were so enthusiastic that they had some made, one for each man. Now both crews are equipped with these tools. The cost made at the blacksmith shop is 75¢.

Sept. 6, 1932.

H. N. Putnam, Wis.

AUGUST IN MASSACHUSETTS

In two of our five districts in which control work is in progress this season, our efforts during August were devoted entirely to black currant location and eradication work. It is perfectly astonishing how the owners of such bushes have cooperated in their removal. During the month, this work was in progress in 11 towns. At 210 locations, plantings of black currants were found and up to the close of the month, 829 or 77% of the plants have already been destroyed without friction. Of the total number of black currants removed this season, 83% of the owners removed the plants without our assistance.

In the regular control work, continued progress was reported and during the month 268 projects were under way. These projects involved the examination of 33,324 acres of land, and the clearing of 59,338 wild and 402 cultivated Ribes. Cooperating owners devoted 2,800 hours to the work during August.

As heretofore, black currant bushes have been heavily infected and infection on wild Ribes continued heavy during the month. The wild Ribes seem to be holding their leaves remarkably well this year in spite of the dry conditions, although our work has not recently involved the removal of skunk currants and that species with us is usually the first to show signs of defoliation.

Our first blister rust display for the Agricultural Fair season, was staged by Agent Doore at the Great Barrington Fair in Berkshire County, opening on August 30. This exhibit was somewhat novel, representing a "per contra" type of a display with healthy pines from a Ribes-free location, contrasted with trees killed by the blister rust because of the presence of Ribes on the area. This exhibit received very favorable attention from the attending populace.

September 8, 1932

C. C. Perry, Mass.

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WATERSHED PLANTINGS IN EASTERN MARYLAND INSPECTED

The city of Baltimore began planting white pine on its watershed on the Gunpowder River at Loch Raven in 1912. The plantings have been continued up to date. During this period 381,650 white pines have been planted. An inspection on August 16th and 17th of this year failed to reveal either cultivated or wild Ribes within or near these plantations. The pines have made good growth and present a beautiful appearance, particularly in pure stands. Where planted with faster growing hardwoods, some of the pines have suffered severely and others have died.

The plantation of the Emmitsburg Water Company in Frederick County was inspected on August 18th. Three thousand trees were planted on old fields about 1926. Only one Ribes bush, an escaped cultivated red currant was found near the plantation. The remainder of the watershed is covered with hardwoods and with scattering scrub pines.

R. G. Pierce.

BLISTER RUST CONTROL IN RHODE ISLAND

A four-man crew has carried on varied blister rust control activities during the present field season in Rhode Island. This State crew has been concerned with protecting sixteen white pine plantations, several white pine growing nurseries, stands of native white pine, and checking the long distance spread of blister rust through European black currant eradication. The white pine plantations where blister rust infection was found on white pines last year, have been protected from further spread of the rust through the eradication of all Ribes within 900 feet. A start has been made in establishing nursery sanitation as well, to protect ornamental white pine growing stock.

On Saturday mornings and during inclement weather the crew has continued the scouting for and eradication of European black currants in the metropolitan area of Providence. This black currant eradication project has been completed in all other sections of the State.

In addition to the above-mentioned work, rechecking for Ribes in pine areas has been started in the Town of West Greenwich in a section which was initially scouted during 1918 and 1919. Two crew men completed their work September 3, but the remaining two men will continue control activities, especially nursery sanitation and black currant eradication until late in the fall.

New State Forest in Rhode Island

Rhode Island received its second State forest in August of this year when a 270 acre tract of woodland located in the town of West Greenwich was given to the State by Wickaboxet Farms, Inc. of that town. This State property is to be known as the Wickaboxet State Forest. Although there are only a few white pines scattered through this forest, the area has been scouted recently so as to destroy Ribes and to determine blister rust control conditions before making any plans for future plantations of white pine.

Roadside Demonstrations

Three blister rust control roadside demonstration stands have been erected in different sections of Rhode Island during the past year to inform the public about the disease and its control. An acquaintance of the blister rust control leader recently heard an interesting conversation on the work while standing outside a village store where one of the demonstration stands had been erected. According to this acquaintance the men talking were keenly interested in the control of blister rust and appeared to have an intelligent knowledge of the disease. Although most blister rust control activities in Rhode Island are carried on by State men, it is necessary to have the cooperation of owners of Ribes and white pine. Thus, it is gratifying to learn that the roadside stands are causing favorable comment.

September 9, 1932.

A. W. Hurford, R. I.

LARGE WHITE PINE GROWING IN CARROLL COUNTY, NEW HAMPSHIRE

The largest white pine in Carroll County, and one of the largest in the State, is growing on the Brewster Farm in Wolfeboro, New Hampshire. It is 68 inches in diameter, breast high. That is the "over-all" width of a 1930 Ford. This magnificent tree is growing on the edge of a meadow with 3 other pines of about 50 inches D.B.H. They are surrounded by young hardwoods.

The farm on which this large pine is growing has been in the Brewster family a great many years, and the pine has always been known as a large tree. There is a provision in the deed of the farm stating that the pine shall not be cut. It is a fine specimen of the trees which the first settlers must have found here. This farm is in the Federal Demonstration Control Area.

S. H. Bocmer, N. H.

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WELFARE CREWS DO GOOD WORK IN MAINE

During this season two of my eradication crews in the Towns of Rumford and Mexico, Maine, were welfare crews, that is, crews consisting of men who were receiving aid from the town. These men were in charge of a trained foreman who was not a resident of the town where this work was being done. The Rumford crew was paid weekly. The Mexico crew was paid according to the following system: each week they received an order for groceries and the balance was credited to take care of rent, fuel and food for the coming winter.

The Rumford crew consisted of a five-man crew and started work May 11, and worked until August 13 with only a change of one man. The Mexico crew started on the same date and will work up to August 20 with only a change of two men. These crews have done good work, and the Rumford crew is one of the best I ever saw.

If the same conditions, which prevail at the present time, continue most of our work next eradication season will be done with welfare crews.

D. S. Curtis, Maine.

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BLISTER RUST EXHIBIT BRINGS RESULTS

That a blister rust exhibit at the Upper Peninsula State Fair is worthwhile, has been definitely proved in our black currant eradication work in the region where the fair is held. While carrying on black currant eradication in Delta County, Michigan this season our men were pleasantly surprised to find that about two out of every three Ribes nigrum owners had already uprooted their bushes. We estimate that about 2,000 bushes were destroyed by their owners before our men came around. We have had a blister rust exhibit at the Upper Peninsula State Fair for the past four years, in addition to several local county fairs. We are convinced that a Fair Exhibit is a good educational medium.

J. K. Kroeber, Mich.

NEWS FROM THE FAR WEST

For the present season blister rust control operations in the Far West are largely centering in north Idaho. A total of 41 camps, averaging about 25 men, are now in operation. Of this total, 33 camps on the Clearwater and St. Joe National Forests are operating under Forest Service appropriation. Eight camps are located on State or private lands and are being cooperatively financed by the land owners and the Division of Blister Rust Control. There are, in addition, two experimental units in the field in Idaho, as well as two camps upon the Mount Rainier National Park in western Washington, and one camp performing experimental reeradication upon the Stanislaus National Forest in California.

Field operations in north Idaho were started on or shortly after June 15. The snowfall of the past winter was so heavy that considerable difficulty was experienced in getting supplies and camping equipment into the field in time to start operations according to schedule. By the 20th of June, practically all of the camps were established, manned with the requisite personnel, and work under way. During the latter part of June and July, 65,313 acres of land have been worked over by hand pulling crews and 2,795 acres of stream bottom land have been given chemical treatment. Ribes per acre have thus far averaged 117. The highest average of the several operations has been encountered on the St. Joe National Forest where the working over of 10,954 acres shows an average of 215 Ribes per acre. The lowest average for any operation has been on the small cooperative operation near Clarkia, Idaho where 1,007 acres have been worked over to show an average of 47 Ribes per acre. During the course of this partial season's work, 7,743,930 Ribes have been pulled by the hand pulling crews. No effort is made to determine the number of bushes per acre upon areas where chemical is applied. Ribes petiolare, the species upon which chemicals are used, layers so freely that determination of numbers of bushes is almost impossible.

Intensification of the rust in north Idaho is now occurring at an alarming rate. New pine infection centers, frequently at considerable distances from other known centers, are being frequently found. The majority of these seem to have resulted from 1927 infection with the oldest ones dating from 1923. Infected Ribes are now to be found with little difficulty over large areas of the Idaho white pine type. Pine infection will obviously occur at a constantly increasing rate during the years to come, and all evidence points to general infection of the pine areas by 1940, in sections where Ribes eradication has not been completed prior to that time.

September 1, 1932.

S. N. Wyckoff, Spokane, Wash.

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Agent J. M. White of Maine writes that Ribes americanum bushes in his district show more than their average amount of infection this year.

RECOVERY OF PINES AFFECTED BY THE NEEDLE BLIGHT

During July, 1931, Tree Warden T. H. Murphy of the town of Hingham, Massachusetts, directed my attention to a rather unusual number of pines in that town that were apparently affected by needle blight. Many of these trees were ornamentals, and quite a number were noted in the town forest which comes under Mr. Murphy's jurisdiction. Upon the suggestion of State Leader Perry, we tagged 25 of the trees so affected in the town forest for purposes of further observation, to determine particularly how prolonged the trouble might be.

The trees were observed and tagged on August 18, 1931, care being taken to select trees that were growing under varying conditions of exposure and site, and trees in different age classes. All the trees were seriously "blighted". The first check record was made in the fall of 1931 and subsequent records in May, June, and July of this year. At the date of the last inspection all but one of the trees had apparently completely recovered, and had made a normal growth this season. The one tree that will surely die within a year or so is located on a rocky slope where conditions are particularly adverse. This study was not extensive, of course, but it does enable us to say with a little more confidence, that trees affected with needle blight will usually "come back"; at least, I have in this way definitely observed that they do.

August 15, 1932.

E. M. Brockway, Mass.

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WHITE PINE BLISTER RUST AND UNEMPLOYMENT

This summer the villages of Bellows Falls and Springfield, Vermont, have been using their unemployed to protect their white pine areas from blister rust. These towns paid a blister rust foreman's wages and furnished a six-man crew. A total of 25 men were used on the two jobs since the same men were not used each day, thereby spreading the work among a greater number of men. About 1200 acres were covered and approximately 10,000 Ribes destroyed.

Both towns have done some forestry work in the past, consisting of thinning, pruning and release cuttings, and will continue the work this fall and winter. Most of this work has been carried on in white pine plantations and natural pine stands, and unemployed labor has been utilized.

F. H. Rose, Vermont.

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CANKER - A SQUIRREL FOOD

When blister rust invaded the country to attack our white pine the squirrels found a very acceptable substitute for nuts in blister rust cankers on the pine. Apparently the tissues of the parasite plant that is the cause of blister rust are high in sugar and starch content. In areas where blister rust is prevalent, the squirrels soon learn that a blister rust canker is a very acceptable meal. The eating of cankers by the squirrels results in the quicker death of the infected pine branches and tops. It does not materially aid in the control of the disease. ****.

L. B. Ritter, Minn.

(Extract from "The Smoke Screen", St. Paul, Minn., August, 1932.)

FIELD SEASON EXAMINATION

Last season we inaugurated in Massachusetts the policy of subjecting our field men to a mid-season examination. The practice seemed to be a profitable one and, therefore, on July 30 of this season, another such examination was given. The questions were three in number, and very simple. One question required the field man to show that he knew his responsibility under the Massachusetts policy of direct cooperation with property owners. The other two questions involved mere matters of memory. Included among the answers there was one that seems to be so responsive that it is reproduced below:

"Question: What in your estimation are four of the most essential points to have particularly in mind when doing wild Ribes eradication, especially when instructing pine owners and others to do the work effectively?

Answer: To my mind four of the most essential points to have in mind when instructing pine owners and others how to do wild Ribes eradication work efficiently and effectively are the following:

(1) I would impress upon the mind of the owner or his employee (s) the importance of Ribes eradication work, reasoning that if a man is convinced of the usefulness and importance of his work, he will do it better and quicker than when he is indifferent to it. To stimulate interest, I might tell him something of the history, extent, and aim of the work; show him samples of the disease; and prove to him, especially the owner, that it is of great profit to him to have his woodlands protected.

(2) When having his interest I would show him samples of the Ribes likely to be found on the area. I would do this, because, unless an owner or worker knows exactly what to look for from the very start, inefficient and slovenly work results.

(3) I would try to impress upon him (them) the value of thoroughness before beginning the work, and insist upon it during the work. In this connection I would emphasize three points:

- (a) To look the ground over carefully, especially on rocky ledges, along stone walls, under and in large or dead trees, and along brooks and on swampy ground;
- (b) To be thorough, getting out all the shoots of the Ribes, looking for seedlings, getting all the roots and hanging the uprooted bushes where they will dry out;
- (c) Emphasize the importance of checking back to look for missed plants that might more readily be seen while approaching from the opposite direction.

(4) I would attempt, as much as the time would permit, to get the owner and others to look upon Ribes as pests as injurious as weeds or insects in the fields or gardens. I would suggest that he (they) pull up any Ribes they might come across later, especially in the eradicated area and

its protective strip of 900 feet, because the ultimate effectiveness of initial eradication work depends to a large extent on the 'follow up'.

At parting, I would commend the owner on being far-sighted enough to protect his white pine against this disease."

A further point of interest about this answer is that it was written by a field man who has devoted his two seasons in Massachusetts exclusively to black currant eradication work. His experience in regular control work includes just six days work at the beginning of the 1932 field season.

August 15, 1932.

C. C. Perry, Mass.

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HIGHWAY DEMONSTRATION OF WHITE PINE BLISTER RUST

For the second consecutive season, a roadside demonstration of the seriousness of the blister rust disease is being held along the Littleton-St. Johnsbury Highway, Route 18, just 4 miles west of the village of Littleton, New Hampshire. Tourists, and natives of both Vermont and New Hampshire, in traveling over this highway cannot fail to note the demonstration which is located just about one mile east of the bridge across the Connecticut River. As a matter of fact, practically over the entire route from Littleton to St. Johnsbury, wherever white pine exists, plenty of evidence may be seen along the way of the work of this disease. Last year an attendant was present at this demonstration to conduct interested persons over the area and explain the workings of blister rust. This year, however, owing to Federal curtailment of expenditures, this demonstration will have to speak for itself since no regular attendant will be in charge. However, a register has been installed for the convenience of those persons visiting the area, and who desire further information or free inspection of their pine woodlands. All persons visiting this area are urged to sign their name to the register, and if further information or advice, whether concerning blister rust or other forestry matters is desired, a card with their name and address, dropped into a box within the register, will bring prompt reply and service.

In 1931, more than 2,000 persons from 24 States, several Canadian Provinces, and two foreign countries visited this area. ****.

L. E. Newman, N. H.

(Extract from "New Hampshire Forests", June, 1932, Vol. IX, No. 2, p. 7.)

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RIBES HUDSONIANUM FOUND IN GRAND TRAVERSE COUNTY, MICHIGAN

Mr. R. I. Thompson in letter of August 16th reports that while making a preeradication survey of National Music Camp, Interlochen, Grand Traverse County, Michigan, in company with Mr. Robertson, they ran across some Ribes hudsonianum. This is the first time this species has been reported from Grand Traverse County. Records show that hudsonianum has been reported from the following additional counties in the Lower Peninsula of Michigan: Antrim, Cheboygan, Emmet, Iosco, Otsego and Roscommon.

BLACK CURRANT ELIMINATION IN ST. LAWRENCE COUNTY, NEW YORK

The elimination of the cultivated black currant (Ribes nigrum) occupies an important place in blister rust control work in St. Lawrence County. Twenty-two of the 32 towns in the county have been rid of the black currant menace. The bushes seem to be more numerous in the towns bordering on the St. Lawrence River. For example, in the town of Waddington alone, 160 R. nigrum bushes were destroyed, while an inspection of a town in the southern part of the county revealed not a single bush.

The work has progressed successfully so far. However, as everyone connected with black currant elimination work knows, a certain amount of antagonism is aroused. Much of this opposition is allayed after an explanation as to why the work is necessary. But some people, fortunately a minority, cannot be made to see the necessity for the destruction of their black currant plants. One woman who possessed two bushes, adopted an antagonistic attitude, and refused to have the plants removed. A few days later, the foreman, having occasion to pass the house, stopped and the lady met him at the door with the words, "Go ahead and pull them up." Elated at overcoming her resistance so easily, the foreman entered the garden, but careful search failed to disclose the two bushes. Whether the lady conscientiously destroyed the plants or whether she had planted them in some inconspicuous place is a question. From her attitude I think it is safe to assume the latter.

This brings up the question of the replanting of cultivated Ribes. Educational work persistently pursued will help considerably, but I think it will not entirely stop the practice.

August 9, 1932.

Charles B. Kresge, N.Y.

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EFFECTIVE INFORMATIONAL SERVICE

Results of recent informational work in the Berkshires sift in at the rate of two or three calls a week. The following letter is an example:

"Great Barrington, Mass.

August 1, 1932.

Dear Mr. Doore:

I am trimming out my pines this summer, and I would appreciate your sending one of your blister rust control men to go over the forest with me, and one or two other men to eradicate any Ribes that might further endanger the growth of the trees.

Sincerely,

C. D."

August 15, 1932

G. S. Doore, Mass.

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CURRANT BUSH IN CROTCH OF ELM TREE PRODUCES ABUNDANT CROP

A currant bush growing from the crotch of a large elm tree in Canton, N. Y., now has its annual crop of white currants. The bush grows about fifteen feet from the ground and has yielded an abundant crop for the last nine years.

(Extract from the Warrensburg (N. Y.) News, August 11, 1932.)

INTERSPECIFIC HYBRIDIZATION OF GENUS RIBES L.

The following extracts and principal conclusions gleaned from a translation of a Russian article by N. M. Pavlova entitled "Survey of Cytological-Genetic Facts on Genus Ribes L." may be of interest to some readers of the Blister Rust News.

Interspecific hybridization in genus Ribes L. is very widespread; this genus offers a wide field for remote crosses. Forty-five interspecific hybrids of Ribes are now known, most of them obtained by experiment. The crosses which have been made in recent years have provided much quantitative material, and have given promise of great possibilities for the future.

The numerous species of genus Ribes (more than 160 have been described in all) fall into several groups which differ noticeably from each other. Janczewski set up the following subgenera: Ribesia, Coreosma, Grossularioides, Parill, Grossularia, and Berisia. Interspecific hybrids are known within each of these with the exception of Grossularioides. It has also been proved possible to make hybrids between species belonging to different subgenera, sometimes between subgenera which are far removed from each other in morphological and biological characters.

Interspecific hybrids of Ribes form a series which shows all the transitions from the very fertile to the wholly sterile.

From a cytological standpoint, genus Ribes has an interesting feature. All the cytological studies which have been made of 18 species and 9 hybrids, belonging to five different subgenera, have disclosed one and the same number of chromosomes. This is very rare, according to Tischler, among the dicotyledonous plants. Until now it has been known only among genera which have a small number of species.

No wild hybrids of Ribes have yet been found. The first hybrid to be discovered among cultivated plants was described by Tausch in 1898 as an independent species - Ribes urceolatum Tausch.

A hybrid between members of different subgenera was first obtained by Culverwell, and was described by him in 1883. The parents of this hybrid were R. nigrum L., the black currant, and R. grossularia L., the gooseberry. This interesting hybrid is almost sterile.

There are no special genetic papers on genus Ribes, but we have a number of facts on the genetics in papers by Janczewski and Lorenz. Both authors have demonstrated that hybridization is easily accomplished in genus Ribes L. Hybrids are known between species of different subgenera, and between monoecious and dioecious plants. Janczewski observed F₂ of the hybrid R. succirubrum Zab., and noted in that generation the absence of Mendelian splitting. This fact, however, requires verification. In subgenus Parilla, Janczewski showed that deciduousness is a dominant character over persistence. Lorenz found that in the gooseberry resistance to sphaerotheca is a trifactorial and recessive character.

From a cytological standpoint genus Ribes L. has been better worked out. Thanks to studies by Meurman, Darlington and Tischler, a number of interesting

conclusions have been reached: (1) All the species of Ribes L. which were studied have one and the same number of chromosomes, $2n=16$. (2) Chromosomes of the different species differ in size. (3) In the fertile hybrids of Ribes L. homologous chromosomes received from the father's side and from the mother's are equal in size. (4) The greater the difference in size between the parent chromosomes, the more pronounced is the sterility of the hybrid. (5) Fertility is associated with regularity in the course of reduction division. (6) The number of bivalents in the mother cells of sterile hybrids of Ribes L. is extremely variable. (7) In some sterile hybrids, including the hybrid between the black currant and the gooseberry, there are pollen mother cells which include sixteen univalents, forming a regular equatorial plate. If we admit the presence of analogous cells in the female reproductive apparatus, it becomes possible to obtain tetraploids (polyploids have hitherto been unknown in Ribes L.). (8) No sex chromosomes were found in dioecious species of Ribes L.

H.T.W.

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MAPPING AND SCOUTING PROJECT IN NEW HAMPSHIRE WELL UNDER WAY.

In order to offset a reduction in town cooperative control measures this season, and to eliminate, wherever possible, areas containing insufficient pine, State funds are being employed in 29 towns where estimates appear to indicate that more than 3 years will be required to complete initial control.

The project undertakes the mapping of unworked areas by a specially trained personnel, scouting for Ribes and pulling such of these bushes as may be effectively and economically handled by an individual, and laying out future crew work. An expenditure of approximately \$6,300 is contemplated and this sum has been allotted among the 29 towns, the amount for each varying from \$60 to \$300. The allotments were based on the amount of remaining pine areas in each town and approximately one-half of the unworked lands were set as a tentative goal to be mapped and scouted this season. Altogether, the combined areas which we hope to map and examine total 127,800 acres. It is doubtful, however, whether this goal will be realized, but it is likely that nearly 100,000 acres will be covered.

The mapping and scouting are being carried on under a uniform system throughout the State, and are based upon a field manual drawn up by Agent T. J. King and Chief Scout Wm. B. Smith. All of the scouts have been trained by Smith and are not permitted to carry on by themselves until the Chief Scout is satisfied that they are well grounded and competent. Many of the State Leaders will be somewhat familiar with this system since the writer has sent them a copy of the scouting manual. In a later issue of the Blister Rust News a resume of the season's accomplishments in this project will be given. Suffice to say, excellent progress has been made already in several towns, and much interest in the project has been shown by local residents. Moreover, during the course of their duties the scouts have had the opportunity to make many contacts with local pine owners and others, and it is believed much valuable educational work has resulted.

August 11, 1932

L. E. Newman, New Hampshire.

PIERCE INVESTIGATES BLISTER RUST CONDITIONS IN WEST VIRGINIA

The Charleston (W.Va.) Gazette for September 8, 1932, has the following write-up concerning the visit of Mr. Roy G. Pierce in Charleston to investigate blister rust conditions:

"An investigation of white pine blister rust in West Virginia will be started today by Roy G. Pierce, associate pathologist of the Bureau of Plant Industry, United States Department of Agriculture, in cooperation with J. W. K. Holliday, Chief Forester of the State Game, Fish and Forestry Commission.

"Mr. Pierce will arrive here this morning from Washington for a conference with Mr. Holliday. They may go tomorrow to the Conley State Forest Nursery in Cabell County and later will visit the Federal Forest Nursery in Randolph County.

"The white pine blister rust has developed rapidly in some sections of the State. The investigation is planned for the purpose of devising means of combatting the destruction of trees by the disease.

"D. B. Griffin, district forester located at Bramwell, arrived here yesterday to make reports to Mr. Holliday. It is probable he will be called upon to aid in the white pine rust survey." ****.

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CROWDS WATCHING ECLIPSE APPEAR INTERESTED IN BLISTER RUST EXHIBIT

According to an item in the Bar Harbor Times for September 7, 1932, the crowds of people who gathered on Cadillac Mountain Summit in Maine to watch the eclipse, also appeared interested in a blister rust exhibit arranged by Mr. K. K. Stimson. A paragraph from the item entitled "Hundreds Watched the Eclipse from Summit" is given below:

"The ranger station came in for its share of interest before and after the great phenomena and there the exhibits of Ranger Naturalist Stupka and the exhibit arranged by Kirk K. Stimson in charge of pine blister rust control work in the Park came in for a good share.

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MICHIGAN STATE INSPECTOR SECURES REMOVAL OF BLACK CURRANTS
AT ST. JOSEPH IN BERRIEN COUNTY.

Mr. R. I. Thompson in letter of August 16th informs us that Mr. A. H. Beyer, a State Inspector on Cherry Fruit Fly work under Mr. E. C. Mandenberg, reported the finding on May 21st of about 75 black currant bushes growing and being cultivated in a cherry orchard at St. Joseph in Berrien County. The tenant on this property agreed to destroy these black currants, and on June 28th, Mr. Beyer found the property free of black currants. The Division of Blister Rust Control appreciates such splendid cooperation.

H.T.W.

SEEDLINGS FROM R. NIGRUM

From time to time the question has arisen whether or not there will be a recurring problem in connection with the elimination of R. nigrum on account of the development of seedlings following the removal of the parent plants. During the 1931 field season, one of my projects involved the elimination of 2,777 black currant bushes, principally from two towns in my district. At the suggestion of State Leader Perry, I have recently revisited locations where 1,106 of these plants formerly grew, for the purpose of determining to what extent seedlings had developed this season. In this check work, observations were made at 62 locations. At 54 locations no seedlings of any description were present. At the other 8 places, 19 seedlings were found. Of these seedlings, it was evident that 9 had been present at the time the parent bushes were destroyed and had not been noticed at that time. The other 10 were apparently 1932 germinations. "Extra curricula" activities, such as this study, are of interest, and enable an agent to give information that he can back up out of his own experience.

August 15, 1932.

E. M. Brockway, Mass.

Comment: The above note as well as the one on pine needle blight by Mr. Brockway, are excellent examples of worthwhile studies of control problems that agents can carry out in their respective districts in connection with their regular studies. Such studies should make the agents' work more interesting. The results are helpful to the agent and to the work as a whole. I hope more of the field men will follow Mr. Brockway's example. In the future Mr. Fivaz will probably be able to give more time to the development of such work among the field men and to coordinating and summarizing the results into brief articles for the use of the field force as a whole.

J. F. Martin.

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EXPENDITURES FOR BLANK PAPER MUST BE KEPT DOWN

Due to the drastic reduction in the Bureau's allotment of funds for blank paper, it is necessary for everyone to eliminate all wasteful or unnecessary use of blank paper. Correspondence should be handled in such a way that rewriting will be unnecessary. Stenographers and typists should be cautioned against errors necessitating rewrites. In cases where it is absolutely imperative to rewrite a letter or memorandum, the originals should be saved and used as scratch paper. Whenever possible letters should be held to one page length. Writers are cautioned to use increased care in preparing manuscripts so as to obviate the necessity of re-typing material.

H. P. Avery.

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PUBLICATIONS

McArdle, Richard E. "The Relation of Mycorrhizae to Conifer Seedlings", Journ. of Agr. Research, Vol. 44, Feb. 15, 1932, pp. 285-316. The study which is the basis of this paper was made in plantations of Norway spruce and northern white pine in the Saginaw Forest of the School of Forestry and Conservation, Univ. of Michigan, Ann Arbor.

HISTORY OF THE WHITE PINE BLISTER RUST IN PENNSYLVANIA

The Service Letter of the Pennsylvania Department of Forests and Waters for August 25, 1932, devotes half of its space to a very interesting article giving the history of the white pine blister rust in Pennsylvania. This article entitled "The Control of the White Pine Blister Rust" was written by Mr. R. M. May, a State Blister Rust Control Agent. Extracts from Mr. May's article are given below:

"Although the first infection of blister rust on white pine found in this country was discovered in Pennsylvania as early as 1905, the spread from this source was not great because of the foresightedness of those charged with the protection of plants from diseases. In every instance the original infections were destroyed at the time of discovery, and in most cases this destruction took place before aecia **** had been produced, which was probably an important contributory cause in retarding the spread of the disease in this State. ****.

"After the first flurry of activity little or nothing was done to combat the spread of blister rust, despite the fact that new infections were being discovered periodically. Even today with the rust known to be present on white pine in 35 counties in Pennsylvania and probably present in the remaining counties in which white pine grows, many people are not convinced of the need for combating and exterminating this disease. ****.

"Unfortunately few of us have had the opportunity to witness the destructive power of blister rust. We are inclined to look upon a serious infection, such as the one in the Halfway Camp plantation in the Bald Eagle Forest District, as being an exception, which is it not. Infections of similar intensity are the rule rather than the exception throughout New England and New York wherever intensive control measures have not been practiced. At the Halfway Camp plantation the oldest canker found was of 1925 origin. In 1931 an attempt was made to prune or cut out all the infected trees in a part of the plantation, about one acre in extent. This attempt was abandoned when it was found that every tree would have to be pruned and a large number removed entirely. Several trees were found on the area on which more than 200 cankers were counted. Needless to say this was a number more than sufficient to kill these trees before the cankers produced aecia. The rapid spread of the rust on this area took place largely in 1925, assuming epidemic proportions.

"Such infestations occur periodically, depending largely on weather conditions. Another series of years with weather conditions similar to those of 1925, 1926, and 1927 would certainly bring out the aptness of the comparison of blister rust and chestnut blight.

"In 1931 there was a general infestation of Ribes in the northern counties. The effect of this infestation is yet to be seen. However, if the intensity of the spread of blister rust to pine is as great as is indicated by the frequency of occurrence of the disease on Ribes, we will have a new infection area of startling proportions in parts of Sullivan, Susquehanna, Tioga, and Bradford Counties. ****.

"In 1929 the Department of Forests and Waters, through the Bureau of Forest Protection, entered into a contract with the Bureau of Plant Industry of the

Pennsylvania Department of Agriculture, and the Bureau of Plant Industry of the United States Department of Agriculture. The object of this agreement is to control white pine blister rust in Pennsylvania, and under it the Department of Forests and Waters assumes the responsibility for cooperating with counties, townships, associations, individuals and other pine owners in the application of local control measures.

"The permanent organization of the blister rust control forces in Pennsylvania at present consists of the State leader and an agent employed by the United States Department of Agriculture, Bureau of Plant Industry, and one blister rust agent employed by the Department of Forests and Waters. ****. In purpose every district forester is also a blister rust agent. However, on the basis of the work done on the lands of private individuals and the control work carried on in State Forests, few of them can be called agents. The work of carrying out local control measures is delegated to the ranger personnel, and the advance scouting, which is necessary to determine advisability of eradication, is done by the rangers or by the employees of the Office of Blister Rust Control. ****.

"Considerable impetus was given the white pine blister rust control program in Pennsylvania during the past three years. Much was accomplished in protecting white pine from the rust, both in State Forests and on the lands of private individuals.

"In June, 1932, the blister rust control force was increased to 7 men by the addition of 4 temporary Federal agents. These men were employed for the specific purpose of assisting private individuals in protecting their white pine from the rust.

"The majority of white pine timber owners interviewed were favorable in their attitude toward cooperating with the agents. The greatest difficulty encountered was to find time to carry out the work planned. On a basis of the work accomplished, the past season was a successful one. The work on State land showed some improvement over that done in previous years because of the increased experience of the crews used. As to the work done on private land it was more successful than had been anticipated. Greater cooperation was encountered than had been expected.

"The white pine mapping program has been carried through to completion in 28 counties. The purpose of this mapping is to ascertain the acreage of white pine in the State, in order to carry out a program of local blister rust control." ****.

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FREE FROM BLISTER RUST

In a recent issue of "American Forests" we noted with interest an advertisement of a New Hampshire-Maine forest nursery that was frank and honest enough to admit that such a tree disease as "Blister Rust" existed. This concern offered for sale "certified white pine, free from blister rust". And their trees should be well protected from this serious and fatal bark disease of our native white pine, since for several years this nursery has spent money in uprooting all currant and gooseberry bushes for more than 1,000 feet around the environs of the property. In carrying on such work, this company has cooperated with the States of New Hampshire and Maine.

L. E. Newman, N. H.

LOG WATER PIPE LAID IN 1799 BY AARON BURR GROUP IS DUG UP

A six-foot section of the ten miles of wooden pipe which constituted the city's first water supply system 133 years ago was dug up yesterday by workmen repairing a water main at Washington and Carlisle Streets. The section, a white pine log a foot in diameter, with a three-inch bore, was in good condition, although no water had passed through it since 1825.

According to John W. McKay, deputy chief engineer of the Bureau of Water Supply, sections of the old wooden mains are found from time to time by department workmen. The mains were laid in 1799 under a State franchise granted to a group of men, among them Aaron Burr, who formed the Manhattan Company to purvey water. The profits from the enterprise were used to found the bank which is now the Bank of Manhattan Trust Company.

Extract from "New York Times", September 7, 1932.

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BADLY INFECTED PINE AREA AT FRANCONIA, NEW HAMPSHIRE

In looking over some 1923 areas in Franconia, New Hampshire, last week, I ran across an infected area of considerable extent, that I think rivals "Waterford" from the standpoint of commercial damage to white pines. For the most part, the trees are from 50 to perhaps 70 years old, tall and straight and well pruned. On account of their small crown, infection quickly reached the main stem, high up, and death must have occurred quickly. On account of the size of these pines the area looks to me like a splendid one on which to make a study of damage to commercial growth.

L. E. Newman, N.H.

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QUALITY OF WORK OF "UNEMPLOYED" UP TO STANDARD

Careful checking of the work done by the wild Ribes eradication crews, consisting of otherwise unemployed men, has revealed that the quality of the work is fully up to standard. We feel that these crews do just as good work as a regularly employed crew.

In Marquette County, Michigan, where the "stagger plan" of employment is used, that is, each group of five men working only two days a week, we were at first afraid that the men would lose their "Ribes eye" from one week to the next but this is not the case. On the contrary, where a regular crew working day after day might get "doggy" these men are "rarin' to go" after their five-day layover, and they do not lose the "Ribes eye" from one week to the next.

J. K. Kroeber, Mich.

BLISTER RUST FOUND IN ASHLAND COUNTY, WISCONSIN

During late July and early August Mr. Putnam and I made a field inspection trip through northern Wisconsin. Even though Mr. Putnam kept his eyes focused for Ribes nigrum bushes and though he persistently watched gardens as we passed them, it was not until the 6th day of our field trip that his eagle eye caught sight of that pest, the European black currant. This was in Ashland County near High Bridge, Wisconsin, and happened only after a long search continued by both of us during the trip. Rust was found only on one leaf of the 15 bushes grouped together. There was apparently no white pine stand within several miles of the bushes.

This was the first blister rust ever found in Ashland County according to our records, even though the county had been under suspicion for several years. Incidentally I might mention that the owner of the bushes did not prize them and if a cultivated black currant eradication program were carried on in that vicinity I think we would have no trouble in getting those bushes where the infection was found.

T. F. Kouba, Wisconsin.

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THE PORCUPINE - AN ENEMY OF WHITE PINE

One of the interesting animals of our northwoods is the well armed, stupid, slow moving sloth-like porcupine. The porcupine is a rodent possessing teeth structure similar to rats, gophers, squirrels and beaver. During the summer the porcupine feeds on all kinds of soft, juicy vegetable food, such as corn, alfalfa, and lily pads and the bark of trees. Its favorite feeding ground is the banks of lakes and streams where moose are feeding. The animal does some damage by eating and wallowing around in cultivated crops, but the greatest economic damage is done in the fall and winter, when it feeds exclusively on the bark of trees. It will feed on the pines, tamarack, aspen, spruce, cottonwood, maple, birch and basswood. In Minnesota it does the greatest damage to white pine, jack pine and tamarack in order named. Damage varies from a sampling bite to the complete stripping of the tree from tip to ground. The amount of damage is variable, sometimes every tree on several acres may be ruined. The Southwest Forest Experiment Station presents the following data:

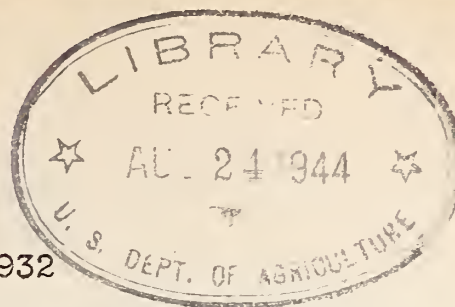
An 8 pound porcupine ate 34 square inches of bark in one night. A 13½ pound animal ate 196 square inches of bark in 6 days, feeding on 2 large and 17 small trees. A 12 pound porcupine ate 300 square inches of bark in 6 days, girdling and killing 39 seedlings and gnawing on 32 others as well as 5 large trees.

W. T. Cox made the following observations while working with a winter cruising party in Itasca Park about 1912. Seventy-six porcupines were observed on 26 forties (40 acres). They had recently girdled and killed more than 370 white pine, whose average diameter was 15 inches. He estimated the total volume of white pine killed by porcupines on the 26 forties, to be 69,500 board feet. Valued at \$8.00 per thousand board feet, the bill chargeable to porcupines was \$556.00.

(Extracts from an article by L. B. Ritter on "The Porcupine", which appeared in Fins, Feathers and Fur, published by the Minnesota Game & Fish Dept., June, 1932.)

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THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and the Cooperating States.

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U. S. Department of Agriculture
Bureau of Plant Industry
Division of Blister Rust Control
Washington, D. C.

THE WESTERN FRONT

By S. B. Detwiler

The most common question I am asked is: "What is the blister rust outlook in the West?" Last month Mr. Wyckoff summarized the progress of control operations. In future issues of the News our western leaders will tell us about specific accomplishments in various phases of the western work. I will give the highlights of the situation as observed on a 5,000 mile inspection trip through the Middle West and Far West during August and September.

Mr. Ovid Butler, Secretary of the American Forestry Association, accompanied me on this trip, and made an independent study of conditions which he will report to the Association.

We started at Haugan, Montana, traversed the Coeur d'Alene National Forest on the splendid new "ridge roads", through the heart of a magnificent body of white pine. We drove southward to the Clearwater region, weaving through the vast acreage of white pine young growth in the St. Mary's Valley, the Palouse division of the St. Joe National Forest, and the Potlatch Association. This is a heavy seed year and young pines only 15 to 20 years old were bending under the weight of their crop of cones. From Clearwater we went to Spokane, and north through the Kaniksu National Forest to Nelson, Vernon and Revelstoke, B. C., concluding the trip by inspection of infected areas in western British Columbia and central Oregon. We were accompanied at various times by Mr. Bush, State Forester of Idaho, Messrs. Kelley, Koch, and Morrill of the Forest Service, and members of the Divisions of Blister Rust Control and Forest Pathology.

This summer in the Inland Empire forests was cool and moist, so favorable to the spread of the rust that it could be picked up readily anywhere on the trip. When we reached the Clearwater region, the first "dry lightning" storm of the season started 135 fires in District 1, but all were quickly extinguished. However, at this time two stubborn fires, probably incendiary, required the efforts of several hundred men on each fire for a week before they were conquered. Men from one blister rust camp were called out but I overheard Major Kelly say to one of the fire chiefs over the phone: "All right, Jeff, I'll have more men there in the morning but we can't call any more blister rust men off their job except as a last resort. Blister rust is moving fast and it's worse than fire." This illustrates how seriously the blister rust menace is regarded by the forest authorities of the region.

Over 1,000 laborers were employed in control work in Idaho this season, about two-thirds of them on national forests. The morale of the camps and the quality of their work were so high as to gladden my heart. First-class work is required to defeat a first-class enemy and what I saw, backed up by the records of strip-line checks aggregating 2% of the area worked, proves that this year's results rate AAA in quality. The blister rust is now present in the western forests to a sufficient extent to make the workers feel they are battling a vicious enemy. Since the backbone of industry in the Inland Empire is white pine lumber, this visible threat to the continuation of the

industry has been a great incentive for each man to do the best possible work. Also, local labor, greatly in need of employment, was a factor in assuring both the quality and quantity of performance.

Areas of infected pines are scattered throughout the length and breadth of the Inland Empire white pine area. The main body of pine lies in northern Idaho and here the rust spots, ranging from single infected trees up to several hundred acres, are so numerous and the conditions so favorable to the spread of the rust that the Ribes are now generally infected, although infection is still light. This situation corresponds to that which existed in the Northeastern States in 1916. The utter savageness with which the disease has already attacked 20 to 40 foot stands at Long Meadow, Clarkia, and Honeysuckle makes it clear that 1932 marks the beginning of a swift end for the Inland Empire white pine except in areas where Ribes are destroyed within the next few years. Stream type Ribes must become so heavily infected in the next infection wave, due in 1936, as to literally burn up the adjacent pine. Upland Ribes will act more slowly but even so, 1940 marks the dead line for their removal.

The areas of blasted pines in British Columbia prove the excessive virulence of the blister rust under western conditions. I spent three days at Revelstoke, B. C., in 1924 - only eight years ago - diligently scouting for the rust, but failed to find a single canker on pine, although a few black currants were lightly infected. My inspection was made about July 1 and shortly before that, Mr. Davidson, then in charge of blister rust scouting for the Dominion government, had cut out the diseased trees in an infection spot at Revelstoke. These trees had become infected from a planting of black currant bushes which first became infected in 1917. Mr. Davidson was justly proud of the cutting-out work, since the trees remaining nearby were apparently completely free from rust cankers, and no other infected trees could be found in the region. Late in the season of 1924, new cankers began to develop in the vicinity of the original infection center to such an extent that hope of eradicating the disease from the region was given up. When I visited Revelstoke last August, I was astounded to find the pines of the region practically 100 per cent infected. Those familiar with the infection conditions in the eastern United States can vision the scene within a radius of one to two miles around Revelstoke, if they imagine a composite picture of the infection areas at Kittery Point, Me., Horicon, N. Y., and Waterford, Vt., at the periods when these centers were showing their greatest amounts of blighted foliage.

Western white pine is not an important timber species in British Columbia, since it constitutes less than one per cent of the commercial timber stand. Nevertheless, it is well scattered throughout eastern British Columbia, and in the vicinity of Revelstoke it is the principal tree species. Wild Ribes are not nearly so numerous in eastern British Columbia as in the white pine region of the Inland Empire, but cultivated European black currants are found in almost every garden. The wisdom of eliminating European currants from Montana, Idaho, Washington, Oregon and California in 1923-7 is shown by present conditions in eastern British Columbia. From Nelson to Revelstoke over a route more than 200 miles in length, I was able to know that black currants were growing on a farm long before I saw the ranch house or the bushes. This was because the white pines along the roadside in the stretches between settlements

were still green and apparently uninfected (although close inspection at any point usually showed a few young cankers from the scattering of wild Ribes). However, when within one-fourth to one-half mile of a ranch, blister rust "flags" on the pines caught the eye and became more and more numerous as we approached the farm garden. Within 300 to 500 feet of the black currants in such gardens, the pines were so severely infected that they were usually dead or dying. In the center of such an area would be a patch of from 10 to 20 European black currant bushes, usually so heavily infected that their leaves were practically all killed.

The most interesting point I visited was Daisy Lake, B. C. A thousand young white pine trees from France, planted in Vancouver in 1910, started the infection in the West, and had released sufficient spores by 1913 to infect currants at Daisy Lake, 50 miles north of Vancouver.

Western white pine is not commonly present in the Coast forests of British Columbia, but at Daisy Lake it forms stands of considerable extent. One of these stands with trees up to 50 feet tall had a dense growth of wild Ribes underneath the pines, averaging 534 pines and 8,300 feet of Ribes live-stem per acre. The heaviest infection of these trees occurred in 1917. Today every tree has been killed by the rust, in less than 20 years from the time the first Ribes leaf became infected. This area represents damage from stream-type Ribes, but in Idaho there are usually from 5 to 10 times more Ribes live-stem per acre in the stream type.

Adjacent to the heavy growth of Ribes is a pure stand of western white pine ranging up to 95 feet in height, and this area averages 663 pines and about 1,300 feet of Ribes live-stem per acre. These trees are now completely infected with the rust, and two-thirds of the stand has been killed. The largest trees killed to date are in the 60-70 ft. height class, but the destruction of this stand is proceeding in so methodical a fashion that it is clear the largest trees will soon succumb. This area corresponds to the upland Ribes type in the Inland Empire, although the growth of Ribes is frequently heavier there.

Data on the damage at Daisy Lake will soon be published by Mr. H. G. Lachmund of the Division of Forest Pathology. One of his study plots is in a pure stand of pine ranging up to 50 feet tall where no Ribes were present on the plot, and separated about 900 feet from the heavy Ribes growth on the other areas. On this plot the pines averaged 760 trees per acre; about 10 per cent still remain uninfected and only about 10 per cent of the stand has been killed. Since these pines have also been exposed for 20 years to infection, this is good evidence that western white pine can be protected through Ribes eradication although it is possible that the width of the protective zone may have to be somewhat greater than 900 feet.

Several miles north of the areas described is a considerable stand of merchantable pine in proximity to a concentration of wild Ribes. Damage here is the most spectacular I have ever seen from the rust and is a most unpleasant sight. At one point, bark beetles added to the effect of carnage by killing a dozen or more pines about 100 feet in height, but it was evident that these trees were in their last stages of death from the rust before the beetles attacked them.

While waiting at Daisy Lake station for the semi-weekly train, I measured a few of the largest trees near the station that had been severely attacked by the rust. In my notes I find the following:

P. monticola - 26" circumference breast height, 50 feet tall; killed by stem and branch cankers in 1930. No bug work. Wood not now merchantable.

P. monticola - 94" circumference breast height, 130 feet tall; 25 feet of top dying from a stem canker; below this the branches are generally infected and the tree will die within 10 years. No bug infection present.

P. monticola - 76" circumference breast height, 140 feet tall; 40 feet of top dying from stem canker and many flags below. Tree will die within 5 years; no bugs present.

P. monticola - 38" circumference breast height, 80 feet tall. Died from stem cankers. 1932. No bug infection present; wood sound.

P. monticola - 72 ft. tall. Tree recently felled and 32 feet of trunk removed. Five feet of top dead from stem canker. Below this, 5 branch whorls, each with 2-5 branches infected and at each whorl the rust entered the trunk and girdled it. Below this, 15 branch whorls having one or more branches infected; the rust had entered the trunk at 5 of these whorls.

From Daisy Lake, I traveled about 50 miles east of Salem, Ore., to study a small area of pine infection on Minto Creek in the Cascade Mountains. Pines in this area were dying from the rust which first reached there about 1920. The heavy infection apparently was caused by a very few wild Ribes bearing but a small amount of foliage. Four branches cut from the lower part of the crown of a 40-foot tree illustrates the intensity of infection. The branches were chosen at random, and had a total main branch length of 12 feet; out of 68 side branches, nine were still alive. The other 59 side branches had been killed by 46 cankers. Most of the infection, as estimated by Mr. Lachmund, took place in 1923-24.

Time did not permit me to inspect the work in California, but general and very heavy infection of wild Ribes in central Oregon indicates that a wave of infection must soon sweep into the California sugar pine region. Mr. Lachmund's studies of the susceptibility of sugar pine indicate that it is more susceptible to blister rust infection than western white pine.

Enroute to and from the West afforded opportunity to stop off in Minnesota, Iowa and Illinois, where I met Mr. Putman. Control work in the Lake States has made exceptionally good progress this year due to the availability of State and local unemployment funds for this purpose. In Illinois, two control jobs are in progress on areas totalling about 2,500 acres, although no rust has yet been found in this State. The Missouri gooseberry was very abundant on these areas, but a first-class eradication job was being done by local labor. A new eradication tool has been developed which greatly facilitates the removal of the deep-rooted and very thorny bushes. In Iowa I saw one of the finest 10-year-old stands of white pine that it has been my privilege to observe. The stand is of unusually rapid growth and vigor, and can readily be cleared of Ribes.

SEPTEMBER IN MASSACHUSETTS

C. C. Perry, Mass.

There has come out of the West the phrase "mop up". September in Massachusetts was devoted to mopping up the odds and ends in our Ribes eradication work. Field work including black currant location and eradication work was concluded on September 24. During the month regular control work was in progress on 6,700 acres of land and involved the removal of 9,400 wild and 900 cultivated Ribes. The black currant survey was continued in 19 towns where 348 plants were found at 73 locations.

An educational display was prepared for use as a part of the exhibit of the Division of Plant Pest Control of the Massachusetts Department of Agriculture, at the Massachusetts Building at the Brockton Fair during the period from September 13-17 inclusive, and in the Massachusetts Building at the Eastern States Exposition in Springfield during the week of September 18. The character of the divisional exhibit only permitted the use of Riker mounts, but effective use was made of even such "classroom" material. During the week of the exposition in Springfield, we received through the courtesy of Mr. Avery of the Washington Office, a new electrical device known as an "Electro Lens". This apparatus was used with effect in providing illuminated magnification of an infected Ribes leaf. We find that the average layman is quite unfamiliar with the appearance of blister rust on Ribes. This device will fill a need that we have noted for some time. We hope to be able to purchase one of these outfits for more general use in Massachusetts in connection with window displays and other types of educational work.

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BLISTER RUST DEMONSTRATION AT BELFAST, MAINE

The "Republican Journal" of Belfast, Maine, for September 22, 1932, has an interesting write-up of a blister rust demonstration which was placed at the Belfast Fair under the direction of Agent H. G. Bradbury. The article states:

"The demonstration was at the end of the midway in the rear of the grandstand and attracted much attention. The exhibit consisted of a collection of white pine trees ranging from five feet to 35 feet in height, showing the different stages of the disease. The trees were planted in the ground to give the effect of a natural forest. Among the trees were placed several varieties of currant and gooseberry bushes, the alternate hosts of the rust. Pine duff was scattered generously on the ground, giving the exhibit a woodsy appearance. All of the exhibit material was collected in Belfast."

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ANNUAL ROLL CALL - AMERICAN RED CROSS

Arthur M. Hyde
Secretary

The annual membership roll call of the American Red Cross will take place during the period from November 11 to 26. The facilities of this splendid organization are being utilized to relieve distress throughout the country on a scale never previously attempted. To continue this work and to provide for the regular activities of disaster relief, assistance to service men and veterans, public health nursing, etc., requires the support of all our people. The employees of the Department of Agriculture have always responded generously to such appeals and I urge them to give increased support to this most urgent plea

CULTIVATED RIBES ELIMINATION PROCEDURE

By J. E. Riley, Jr.

There is nothing unique or especially noteworthy about the cultivated Ribes elimination procedure in Connecticut unless it is the establishment of legal control areas coincidental with town boundaries. This phase of the project is discussed elsewhere in this number of the News.

When the control areas have been established and the quarantine notice posted, the next step in the procedure is the judicious posting of black currant and blister rust posters, placing of display racks and the publication of one or more news items describing the purpose and reasons for the control work. This educational effort plus the previous publicity incidental to securing town approval of the control order sets the stage for the personal contacts and the elimination of the cultivated Ribes.

In the contact work the area is covered thoroughly and systematically by two men working together. One of these men is made responsible for the conduct of the work, the other is a helper. Each house and cellar hole is located and plotted on the map with symbols to show the Ribes status. A number is given each plotted house where Ribes are found corresponding to the cultivated Ribes Record card. If the Ribes are within 900 feet of white pine the number is boxed in red; if more than 900 feet from white pine the number is boxed in blue. When the Ribes are removed the boxing is fringed. A facsimile of the front and back of the cultivated Ribes Record cards is shown below:

(Front of Card)

CULTIVATED RIBES RECORD

No. Owner's Name Address
 Location of bushes: Block No. Town County
 No. Bushes Estimated distance to White Pine
 Attitude of Owner: (Willing, Reluctant, Refuse)
 Remarks

 Interviewed by Date Dates of follow up calls

Kind	No. by Infection		Total No. Bushels	No. of Bushes Destroyed (By Condition Classes)								Total No. Bushes Destroyed
	Inf.	Not Inf.		1	2	3	4	5	6	7	8	
Red and White Currants												
Cultivated Gooseberries												
Flowering Currant												
Black Currant (ameri- canum)												
Black Currant (nigrum)												

TOTALS

Examined by Date
 Bushes destroyed by Date

(Back of Card)

CULTIVATED RIBES CONDITION CLASSES

- CLASS 1 Fruiting plants, four years or older, in good state of cultivation.
- CLASS 2 Fruiting plants, four years or older, in sod and uncultivated, but not entirely neglected.
- CLASS 3 Fruiting plants, two to four years old, in good state of cultivation.
- CLASS 4 Fruiting plants two to four years old, in sod and uncultivated, but not entirely neglected.
- CLASS 5 Fruiting plants, rundown, depreciated by age or lack of recent care.
- CLASS 6 Plants in sod and dying of neglect.
- CLASS 7 Young plants not fruiting.
- CLASS 8 Plants entirely neglected, worthless.

Men on this project are furnished with inspectors' badges and cards authorizing them to enter on private property in performance of their duties. Written instructions are also given them outlining their duties and responsibilities. They are particularly cautioned not to represent themselves as Federal men and not to remove cultivated Ribes without first securing permission of the owner. Occasionally such consent cannot be obtained, in which case the matter is referred to the New Haven office.

This procedure for cultivated Ribes elimination has been in operation for three years now and has given excellent results with very little friction and at a reasonable cost. A few of the 1931 cases referred to the New Haven office have not yet been settled but we still hope to dispose of them without resort to legal measures. There will also be a few 1932 cases for the New Haven office to handle. This summer a planting of 1000 cultivated red and white currants were destroyed with permission of the owner where last year permission was refused. No compensation is paid in any case except where bushes are removed within nursery sanitation zones and there the nurseries, under a verbal agreement with the State, compensate either in money or replacement by other plants.

Our experience indicates that the great majority of Ribes owners have a sense of responsibility to the community and will cooperate for the common good when properly appealed to. An appeal to this sense of responsibility is the most effective force at our disposal. A second force is the desire of Ribes owners to preserve friendly relations with their neighbors. Town approval of the control order makes the local community a party to the control plan and stimulates a sense of responsibility to the community and a neighborly cooperation. Legal authority is of course essential to the accomplishment of a complete job of cultivated Ribes elimination but it is used for compulsion only in emergencies. In the vast majority of cases the effectiveness of legal authority lies more in its implied approval of the project by responsible authority than in its element of compulsion.

The written instructions which were given to the men engaged on this cultivated Ribes elimination project, outlining their duties and responsibilities, will be given in the November issue of the News.

(To be continued)

PINES STATE PARK IN ILLINOIS PROTECTED FROM BLISTER RUST

Men working at the Pines State Park under the supervision of Henry S. Putnam of the United States Department of Agriculture, have completed the work of eradicating the wild gooseberry, propagator of blister rust. Mr. Putnam was working in conjunction with Phil S. Haner, Superintendent of the Illinois Agricultural Plant Division. Every gooseberry bush was taken from the Pines Park and a strip 900 feet wide on each side was also searched for the purpose of eradicating any stray bushes.

Hale C. Scott, custodian of the Park said that every farmer but one in the designated section cooperated with the superintendents in helping to rid the territory of anything which might be the means of propagating blister rust. The State Department of Public Works also cooperated. Although no rust has been found in this State, it has been discovered in Iowa, Minnesota, Wisconsin, Michigan, and Ohio. This precaution was taken for the preservation of the white pines, which comprise the greater number of trees in the State Park. Col. Frank O. Lowden also had work done on his estate to preserve his white pines. It has taken the greater part of the month of September to complete the work as the gooseberry bushes were growing in hazardous places which made it necessary for men to let themselves down the sides of embankments by means of ropes tied about their bodies.

(Extract from the "Rockford (Ill.) Morning Star". September 29, '32.)

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U. S. TIMBER CONSERVATION BOARD RECOMMENDS LARGER SUPPORT TO THE
PROTECTION OF FORESTS FROM INSECTS AND FUNGOUS PESTS.

After a year and a half of investigation into the important facts governing conditions and trends in the forest industries, the United States Timber Conservation Board appointed by the President has now made public its recommendations for public and private action to secure an economic balance between production and consumption of forest products and the perpetuation of its source of raw material. The Board's conclusions and recommendations concerning insect and disease control are embodied in the following resolution:

"The control of injurious insect and disease infestations falls far short of the needs of forest protection. This is in part due to a general lack of public appreciation of the importance of the problem, in part to the unwillingness of many private owners to spend money on prevention of damage, and in part to deficient public appropriations. The most urgent need is to place the work of control on a much larger basis. Heretofore there has not been sufficient preventive work. Infestations are apt to reach dangerous proportions before the Government is prepared to cope with them. Delays or failure in securing appropriations from Congress have accentuated the difficulties and cost of suppression of infestations.

Action Recommended - Larger support to the protection of forests from insects and fungous pests, both on the Federal Forests, and on private and State forests under the established system of Federal aid.

By Whom - The Bureau of the Budget."

(Extract from Special Edition of Forestry News Digest, Aug. 1932)

BLISTER RUST ITEMS IN "HORTICULTURE"

C. C. Perry, Mass.

In the September 15 issue of "Horticulture", the official organ of the Massachusetts Horticultural Society, there are two references to blister rust control. The first reference appears in an editorial entitled "Preserving White Pines" where the following comment is made:

The white pine blister rust is a common disease but since it must spend part of its existence every summer on the leaves of currant and gooseberry bushes it may be controlled by destroying these plants to within a distance of 900 feet of pine trees. The cultivated black currant is more likely to carry the disease than the other kinds. The disease causes yellowish spots to appear on the under surfaces of the currant and gooseberry leaves and as the disease increases it may take on the appearance of a coarse brown felt. The blister rust is a comparatively new disease introduced from Europe on small pine trees that were used for forest planting early in the twentieth century when there was a great demand for them. Blister rust is now common throughout New York State and New England.

The second reference is an item entitled "A White Pine Blister Rust Demonstration" contributed by one Susan Delano McKelvey of Boston, Massachusetts. This item comments in the following complimentary terms on the blister rust demonstration established by the New York authorities in Stephentown, New York.

Between Stephentown and West Stephentown, N.Y., on the road from Williamstown to Albany, is an interesting and instructive demonstration of the work of the white pine blister rust. Placards which attract the attention because of their unobtrusiveness state: "Blister Rust Kills White Pine. Demonstration here. Yellow tags indicate diseased trees." An isolated group of the pine, heavily labeled with bright yellow tags, growing directly along the thoroughfare has been chosen for the demonstration and leaves nothing to the imagination: "This is a gooseberry bush. If there had been no gooseberry bush here blister rust would not be killing the nearby white pine", "Blister rust is killing this white pine", and, on diseased portions of the trunks of the trees, "Blister rust is working here."

The cure is also given: "Uprooting currant and gooseberry bushes within 900 feet protects white pine from blister rust." A small rain-proof box offers bulletins with further information, and, unexpectedly, bulletins were present. For the benefit of those still unable to understand the subject the address of a blister rust control agent is supplied. The work of the Conservation Department of Albany, N. Y., this graphic demonstration should prove more helpful than any number of pamphlets. Its proximity to the road reminded one of a sign in Arizona: "See the Indian Caves in five minutes." It should be unnecessary for any hurried motorist to "waste" more time.

This item is interestingly illustrated by a cut showing the entrance gate, two signs, and the pamphlet box which the author comments on facetiously.

ESTABLISHMENT OF TOWN BLISTER RUST CONTROL AREAS

J. E. Riley, Jr., Conn.

Blister rust control work in Connecticut has been seriously handicapped because of inadequate authority for the destruction of cultivated Ribes. Outside of legally established quarantine zones and control areas, there is no authority for the compulsory removal of cultivated Ribes, other than Ribes nigrum, unless it can be shown that they are infected and within infecting distance of white pine. In spite of the splendid cooperation from the great majority of Ribes owners, a complete job of cultivated Ribes elimination within infecting distance of pine has been impossible in any town because a few non-cooperators can retain dangerous bushes. Such action not only jeopardizes the adjacent pine but creates a situation obviously unfair to those who have sacrificed their bushes for the common good. Often it prevents cooperation from neighbors who otherwise would be willing to cooperate.

The remedy for this situation lay either in a revision of the laws or a more general application of the quarantine power. For various reasons the second alternative appeared to be most satisfactory, and it was decided to establish control areas coincidental with town boundaries.

Authority for the establishment of quarantines and control areas is vested in the Director of the Connecticut Agricultural Experiment Station. He stipulated that control area orders would be issued only against those towns that approved of such a measure and that the orders would apply only to cultivated Ribes within 900 feet of white pine. On this basis control areas were established in the towns of Salisbury, North Canaan, Norfolk, Colebrook, Woodstock and Thompson in 1931, and in Cornwall in 1932. It is planned to extend these orders to cover all towns in the natural white pine section of the State as rapidly as the work of cultivated Ribes reeradication progresses.

The results obtained under this system of State and town cooperation are very encouraging. Less trouble and less expense is incurred in the cultivated Ribes elimination work than was formerly experienced because of the local approval obtained at town meetings; and because of this official town approval it is easier to handle objectors. It appears that the pressure of local sentiment is more potent than the fear of a "big stick" wielded by the State.

September 10, 1932.

WHITE PINE HIGHLY REGARDED IN SWITZERLAND AND GERMANY

Mr. J. A. Cope of the New York State College of Agriculture, who recently made a trip to Europe, makes the following interesting comment:

"I was interested to find how highly foresters in both Switzerland and southern Germany regard the eastern white pine. If it wasn't for the blister rust they assured me that they would plant it far more extensively than they had in the past. When every other forest product is sold below the cost of production, eastern white pine still commands an extremely high price on account of the inherent high quality of the wood. Dr. Burger, Director of the Experiment Station in Switzerland, is another enthusiast for white pine."

THE "LIVING" AND THE "DEAD" ON DISPLAY

G. S. Doore, Mass.

For a number of years we have been sorely in need of something new in the line of displays for use at our County Agricultural Fairs. This season upon the occasion of a field conference with State Leader Perry, I inquired if he had any new ideas along the line of displays. His reply was that he had thought of nothing new but that he would give it further consideration, and I would hear from him later. By return mail I received a letter from Mr. Perry stating that during his return to Boston he had a few "bright ideas" and he enclosed a "crude" sketch of a new display for trial. This is the origin of a new and rather unique type of display that made its initial appearance at the Great Barrington Fair August 30-September 2.

The display featured a series of healthy BLUE RIBBON pines selected from a Ribes-free location, contrasted with pines killed by the blister rust because of the presence of Ribes. The display occupied a frontage of 28 feet filled by a single row of white pine trees placed in position in the following order: Starting at the left a series of six perfectly healthy trees arranged in progression from a small tree $2\frac{1}{2}$ feet in height up to one 12 feet in height; thence, the tree line continued in the reverse size order with pines obviously killed by the blister rust. Grouping the trees in this manner gave a very striking effect, because of the marked contrast of the living and the dead.

Properly worded and neatly painted signs are a most important factor in any display, and we were especially fortunate in "signing up" three such, 2 x 3 feet in size, painted on oil cloth (flat white) with lettering in black and red. The bold type appeared in 3 inch letters, with the key words such as LIFE, PROFIT, DEATH, LOSS and BLISTER RUST done in bright red. In lieu of a description of these signs for purposes of this item, miniature copies appear on the opposite page. The signs were wired to the trees on display in the same relative position as shown.

In order to set off the display and make it a feature by itself in the motley array of other "attractions" the whole layout was fenced off with white birch rails, with ample gateways for entrance for those wishing to examine the specimens closely. Bulletins in metal racks in front of the display were made available.

A brief article in a local newspaper on the opening day of the fair described the display and its location on the grounds. Additional publicity was gained by inserting an "ad" in the official fair program, a booklet of 31 pages distributed free.

This exhibit received very favorable attention and several persons complimented us upon our methods of bringing blister rust control to the attention of the public. After the "show" I was particularly gratified to receive the following comment from Mr. Perry: "I wish to compliment you on the accuracy with which you carried out my suggestions for a new type of blister rust display at the Great Barrington Fair. As I indicated to you the other day, your display was a perfect 'blueprint' of the sketch I forwarded to you." Because of these encouraging facts, plans have been made to set up a similar display at the Northampton Fair on October 3-5.


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*           *               WHICH ?   *
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*           *                   *     *
*           *       LIFE         *    DEATH      *
*           *                   *                   *
*           *                   *                   *
*           *       and          *       and        *
arrow *                   *                   arrow
*           * POTENTIAL         *    TOTAL        *
*           *                   *                   *
*           *       PROFIT       *    LOSS         *
*           *                   *                   *
*****
*                                     *
*           Have You Protected        *
*           *                         *
*           Your White Pines?         *
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[illegible]

WHITE PINE BLISTER RUST CONTROL

Massachusetts & U. S. Department of Agriculture

Great Barrington Chamber of Commerce

Cooperating

IS WHITE PINE NATIVE IN DELAWARE?

Roy G. Pierce

On a recent trip with Mr. R. A. Sheals into Delaware, the question of whether white pine was native in the State was put up to the State Forester, Mr. W. S. Taber. He believes that "white pine can be considered native to the State although extensive stands can no longer be found. That it was to be found in New Castle County at the time the country was colonized is a matter of historic record. The two known outpost stands, one in Kent County and the other in Sussex County, are apparently the only remaining evidences of this species nativity in the State; other stands having long since disappeared through fire and lumbering." In Kent County white pine is found growing in a mixture with loblolly and red gum. The white pine exists over an area of about 8 acres, the oldest trees being about 35 to 50 years of age. A stump of white pine cut some years ago, which was examined, gives the age of the tree cut as about 50 years. The white pine do not appear in rows or in any other regular order as they would if planted, but appear in groups and individually and give every evidence of having sprung naturally from seed. The white pine are reproducing very well on the area, the young growth being represented by all ages from seedlings up to 12 to 15 years. Search was made in the vicinity for any native gooseberries and currants from which the blister rust might later spread to the pines, but no such bushes were observed.

1200 CULTIVATED CURRANTS REMOVED IN ONE-HALF DAY

B. Ripley Park, Conn.

Believe it or not, 1,200 cultivated currants were pulled in the town of Winchester, three miles north of Winsted by six men in one-half day or a total of 24 hours. These bushes were in a poor state of cultivation but bore fruit, and also infection to the extent of approximately 75%. They were in a group and covered about 3/4 of an acre. Pine at a distance of 900 feet almost surrounded the Ribes, and several cankers were found. One owner had been selling his small pine to a nursery and had to discontinue because of so much infection.

Good cooperation was given by both the owner of the bushes and the pine owners. There was no argument about the bushes being uprooted and the services of four men were readily offered.

BLISTER RUST FOUND ON RIBES IN VIRGINIA AND MARYLAND

Mr. Roy G. Pierce in letter of September 21, states that he in company with Mr. C. R. Willey, Virginia State Nursery Inspector, found blister rust in abundance on a row of cultivated red currants about two miles east of Luray, Virginia. Of 40 bushes, 14 were found infected, 4 heavily and 10 lightly. No rust was found on an adjoining row of 23 cultivated gooseberries. Mr. Pierce states that they made numerous inspections at other places in the Blue Ridge and Shenandoah Mountains but found no rust either on pine or Ribes.

The blister rust was again found on the European black currants in two gardens one mile south of Frostburg, Maryland, where it was located last year. Numerous inspections on pine and Ribes were also made at other places in Maryland, West Virginia and North Carolina, but no other locations for the rust were found other than those mentioned above.

PRELIMINARY REPORT ON THE RELATIVE SUSCEPTIBILITY OF SUGAR PINE
AND WESTERN WHITE PINE TO BLISTER RUST.

H. G. Lachmund and J. R. Hansbrough

Since the introduction of the white pine blister rust (Cronartium ribicola Dietr.) into western North America in 1910, each successive year has found the disease spreading farther from the point of initial infection at Vancouver, British Columbia, and, as a result, nearer to the valuable stands of sugar pine (Pinus lambertiana Doug.) in California. In fact, it has already been found on western white pine (P. monticola D. Don) in the Santiam National Forest in Oregon, which places it farther south than the northern range limits of P. lambertiana.

As early as 1888 it was known that sugar pine, growing under European conditions, was susceptible to blister rust. Little information was added to this bare fact until Moir in 1924 stated that this species was very susceptible. No attempt to establish the degree of susceptibility as compared with other white pine species was made until Spaulding in 1925 gave sugar pine a tentative rating equal to that for northern white pine (P. strobus L.) and lower than that for western white pine. Designating the last-named species as very susceptible, he classified the other two as susceptible. Since the data on sugar pine susceptibility were meager, the project described in the present paper was outlined in 1923 for testing the relative susceptibility of sugar pine and western white pine to blister rust under natural infection conditions. Attempts to secure plants for the test were unsuccessful until 1926 when a quantity of satisfactory young trees was obtained. These plants, along with additional seedlings secured in 1929, furnish the basis for this study.

Establishment of Test Plots

For this study Daisy Lake, B. C., was selected as the most suitable place within the range of blister rust. Small sugar pine and western white pine trees were planted in mixed groups on three adjoining plots; Group I and II in April, 1926, and Group III in May, 1929.

Group I was composed of 13 sugar pine seedlings, one to two feet tall, from the Feather River Experiment Station, Quincy, California, and of 14 native western white pine seedlings of the same size from a place in the vicinity of Daisy Lake which was comparatively free of the disease and fairly remote from Ribes, the alternate host of this fungus and the one on which the sporidia are produced. These trees were alternately spaced when transplanted, so that each sugar pine had a western white pine on either side of it.

Group II was composed of 34 sugar pine seedlings, approximately six inches tall, also from the Feather River Experiment Station, and of 35 western white pine seedlings of similar size, taken from the same locality as those in Group I. These seedlings were planted with alternate spacing, as in Group I.

Group III was composed of 126 two-year-old sugar pine seedlings from the Eddy Tree Breeding Station, Inc., Placerville, California, and of 130 two-year-old western white pine seedlings from the Wind River Nursery of the United States Forest Service, near Stabler, Washington. These seedlings were planted and spaced the same as those in the afore-mentioned groups. The basis in this group was greatly lessened because only 67 of the sugar pines have survived to the present time.

Each western white pine tree taken from the vicinity of Daisy Lake was carefully examined for blister rust infection at the time of planting and during the ensuing two seasons. A few cankers of doubtful origin were excluded from the test data. All nursery stock used was known to be free from infection at the time of transplanting, because no rust was present anywhere near the places at which it was grown.

Source of Sporidia

Although blister rust is common on *Ribes* in the vicinity of Daisy Lake, the sporidial supply near the test pines was considered inadequate for speedy and uniform infection. To expedite infection, therefore, *Ribes* bushes of the following species were transplanted adjacent to the plots: European black currant (*Ribes nigrum* L.), winter currant (*R. sanguineum* Pursh.) and stink currant (*R. bracteosum* Doug.). In addition to these plants, there were already a few bushes of the prickly currant (*R. lacustre* (Pers.) Poir) growing in close proximity to the plots.

To increase still further the supply of sporidia near these pines, in 1926 heavily-infected winter and stink currant bushes were suspended from the fence around the plots. This procedure was not followed in subsequent years because infection was considered to be heavy enough on the transplanted *Ribes* bushes to furnish sufficient sporidia.

Time and Method of Taking Data

The trees in Groups I and II were given an annual fall examination in the years 1928 to 1931, inclusive, and those in Group III in the years 1930 and 1931. At each examination the height and crown width of each tree was accurately measured and the number of needles was carefully estimated. Each tree was closely scrutinized for evidence of infection, and each canker, when found, was tagged and given a number so that all essential data could be recorded.

Size of Target

Inasmuch as *Cronartium ribicola* infects its pine hosts through the needles, any consideration of the size of target necessarily involves consideration of the number of needles. In 1926 when Groups I and II were established, the seedlings of both species in each group were approximately the same size and had almost the same number of needles. This relationship gradually changed as the study progressed, because of the fact that western white pine tended to increase its number of needles somewhat more rapidly than did sugar pine. Thus, during 1928 and subsequent years when the number of needles for each species was estimated, the data show that the sugar pine trees had approximately fifteen per cent less needles than the western white pines of corresponding size. This same ratio in number of needles on the two species existed in Group III.

Results

The incident of cankers by year, group, and species is shown in Table I. The relatively few cankers recorded for the 1928 and 1930 examinations as compared with those found in 1929 and 1931 may be explained by differences in

weather conditions during the years of infection. Thus, the hot, dry weather that prevailed during the summer and fall of 1926 and of 1928 - the times at which infection found in 1928 and 1930, respectively, would normally have taken place - was unfavorable for pine infection. Conversely, the weather during 1927 and 1929 was favorable for pine infection.

Table 1
Incidence of Cankers by Year, Group, and Species

Time of exami- nation	Species ¹	Number of New Cankers Found		
		Group I	Group II	Group III
Fall	<i>P. monticola</i>	11	3	--
1928	<i>P. lambertiana</i>	8	3	--
Fall	<i>P. monticola</i>	42	8	--
1929	<i>P. lambertiana</i>	61	12	--
Fall	<i>P. monticola</i>	8	2	1
1930	<i>P. lambertiana</i>	6	0	1
Fall	<i>P. monticola</i>	29	15	10
1931	<i>P. lambertiana</i>	46	29	13

1/ Basis in number of trees for each species in each group remains unchanged throughout and is approximately the same for both species except in Group III where only 67 sugar pines are compared with 128 western white pines.

Totalling cankers per species within each group and averaging for the number of cankers per tree, the comparison in Table 2 is obtained. In assembling the data in this table, no consideration was given to the difference in the size of target for the two species. If such consideration were made, sugar pine would appear even more susceptible than the figures show, because of the fact that it had on the average somewhat fewer needles than western white pine.

Table 2

Average Number of Cankers per Tree for Each Group and Species.

<i>P. monticola</i>	<i>P. lambertiana</i>
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Group	Number trees	Number trees infected	Number cankers	Average number cankers per tree	Number trees	Number trees infected	Number cankers	Average number cankers per tree
I	14	13	90	6.43	13	13	121	9.31
II	35	18	28	0.80	34	22	44	1.29
III	128	11	11	0.09	67	14	14	0.21
Total	177	42	129	0.73	114	49	179	1.57

Conclusion

These data show that under the conditions maintained in this test, P. lambertiana is approximately twice as susceptible to blister rust infection as is P. monticola. Such a ratio must be considered tentative, however, until

further data have been secured. At present, the most that can be stated is that sugar pine appears to be at least as susceptible to blister rust as is western white pine.

Accordingly, in Spaulding's scale of relative susceptibility of white pine species to blister rust, P. lambertiana should be placed on a par with P. monticola, with the understanding that further study may bear out the present indication that it is considerably more susceptible.

Summary

1. An experiment to determine, under natural infection conditions, the susceptibility to blister rust of sugar pine as compared with western white pine was initiated in 1926 at Daisy Lake, B. C. Three test plots with a total of 114 seedlings of the former species and 177 of the latter were laid out and systematic data taken on them at periodic intervals.

2. To facilitate and speed up infection of these trees, numerous cultivated and wild currant bushes were transplanted into close proximity to the test plants.

3. At the beginning of the study, the size and number of needles of corresponding trees of the two species were practically identical. This relationship gradually changed until the sugar pines had approximately 15 per cent less needles than the western white pines.

4. At the end of the 1931 season there were slightly more than twice as many cankers per tree on the sugar pines as on the western white pines.

5. These data lead to the conclusion that P. lambertiana is fully as susceptible as P. monticola, and probably is considerably more so.

(Extract from the "Journal of Forestry", Vol. XXX, No. 6, October, 1932.)

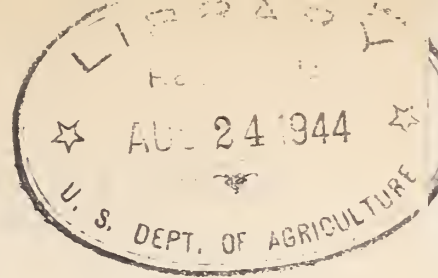
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MASSACHUSETTS ALSO MAKES USE OF THE UNEMPLOYED FOR BLISTER RUST CONTROL WORK.

Wm. Clave, Mass.

Five men were taken from the list of the unemployed in the town of Barre, Massachusetts, and given a month's work on Ribes eradication during the past summer. These men were hired by the Metropolitan District Water Supply Commission for blister rust control work under our direction on lands recently purchased by the Commission to protect the watershed of the Ware River. The waters of this river have been diverted for water supply purposes through a thirteen mile tunnel to the Wachusett Reservoir in West Boylston which supplies Metropolitan Boston with water. Not all of the contemplated purchases of land on this watershed have been made, but it was felt that blister rust control work could well be started on the land already purchased, at this time when so many men were in need of work and the cost of labor was relatively low. Most of the men hired had families and were badly in need of employment. Fifty thousand wild Ribes were destroyed by this crew and their work was well done.

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THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and the Cooperating States

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U. S. Department of Agriculture
Bureau of Plant Industry
Division of Blister Rust Control
Washington, D. C.

BLISTER RUST PROTECTION FOR A HISTORIC NURSERY

Paul B. Mott, New Jersey

No more appropriate location could be found for a State Forest Nursery than the one located at Washington Crossing, New Jersey, located as it is near the site where Washington crossed the Delaware River prior to the historic Battle of Trenton. The old continental lane over which the army marched, passes within a few feet of the seedling and transplant beds where various coniferous species are grown. Apropos of the bicentennial celebration of Washington's birth, which has been so well marked by tree planting throughout the country, is the tree protection work carried on last spring at this nursery. A blister rust sanitation zone was started and Ribes were located and pulled, some of which, (Ribes americanum), were growing at points where the lane borders a small stream. One wonders, while pulling these bushes, whether their predecessors were growing there on that historic night.

Because of the nature of the surrounding country and the wild Ribes therein, an attempt was made to eradicate all wild Ribes within the mile zone as well as the 1500 foot zone. This is probably one of a very few cases where eradication of wild Ribes has been attempted in the one-mile zone.

Authorities in charge of the nursery plan to double their output of white pine, realizing the merits of this species for reforestation. This intention to increase the amount of white pine is not an aimless project, for the State Forestry officials maintain a system of following-up planters to check up on what has been accomplished with the planting stock sent out, to assist with the control of disease and insect problems, and to assist in problems of forest management.

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CHIEF STUART OF THE U. S. FOREST SERVICE VISITS BLISTER
RUST INFECTION AREA IN ASHBY, MASSACHUSETTS

C. C. Perry, Mass.

In the absence of Mr. Filler, who was attending a meeting of the New York blister rust agents in Albany, it was my privilege on October 28 to meet Major Stuart, Chief of the United States Forest Service, and spend a few hours with him in the discussion of the blister rust problem. In company with State Forester Foster of New Hampshire, we visited the Lawrence Plantation infection area in the town of Ashby, Massachusetts, where Major Stuart was able to see something at least of the damage inflicted by the rust in our younger stands of white pine. The extremely short time at Major Stuart's disposal, because of another engagement, allowed only a short half hour actually in the field.

Major Stuart was especially desirous of learning of our experience with the blister rust problem in the East, and our success in initially checking the progress of the disease. As Chief of the Forest Service, Major Stuart is vitally concerned with the adequate protection of hundreds of thousands of acres of five-leafed pines in the West. Major Stuart was particularly interested in what progress had been made in the adoption of definite forest practices as agencies to suppress Ribes and thus supplement hand pulling and chemical eradication of these weeds of our pine forests.

NOTES ON PREERADICATION SURVEY IN CONNECTICUT

J. E. Riley, Conn.

The gathering and recording of field data preliminary to informational and eradication work is an essential activity in the blister rust control program. The degree of success attained in securing town and individual cooperation and the efficiency of the Ribes eradication is coming to depend to an increasing extent upon the quantity and quality of the field data acquired. The securing of this field data at a reasonable cost is a problem that, with us, is not yet solved. These notes are in the nature of a progress report because we are still "feeling our way".

The term "Preeradication Survey" as used in Connecticut denotes a reconnaissance of an area (usually a township) in which the white pine stands are mapped and the Ribes factor obtained. It is the basis upon which the necessity for control work is determined and the cost estimated. It has both an administrative and educational value and is in reality a combination of the pine survey and a scout map. The procedure is as follows:

1. A base map is secured by enlarging the U. S. topographic sheets to a scale of 4 inches = 1 mile. Upon this map the roads, streams, lakes, 100 ft. contours, houses, etc., are drawn in pencil to allow for correction in the field. The map is then cross sectioned into 1 inch squares by magnetic N-S and E-W lines.

2. Sectional maps for field use are prepared from this base map by enlarging 16 of these squares to a scale of 8 inches = 1 mile. Such maps fill a letter size sheet and can be easily handled in the field. If these enlargements are made on X section paper, 10 squares to an inch, each small square then represents 66 feet or 1 chain on a side. In the field, features are located by compass and pacing. First a preliminary circuit of each block is made and the junctions of road boundaries with wood roads, type boundaries, fences and streams are located and plotted on the field map. Then two or more strips are made across the block in N-S and E-W directions and the balance of the type boundaries, wood roads, fences and streams are plotted. Pine is classified as below or above a 6 inch diameter and it is also classified as to control treatment required in accordance with the pine classification discussed at the Lakeville Blister Rust Conference.

3. A scout map may be made at this time providing the work is being done when Ribes are in leaf. The scout map is made by a Ribes scout who determines the Ribes factor in the various sub-blocks and eradicates the Ribes where they are few and concentrated. If they are numerous and scattered the subblock is set aside for crew work. The field work follows closely the field mapping described in the New Hampshire publication "The Scout Map" by Thomas J. King and Wm. B. Smith. (Let me take this occasion to express my appreciation of this publication. Their procedure is clearly presented in detail and to me it represents the best development in scout mapping.)

4. Data on pine infection is obtained preferably during the winter months because there is less obstruction from hardwood vegetation and the cankers are easily located. Strips are taken throughout the town and the per cent of trees infected is obtained and canker data is taken by year of origin.

5. The corrected base map is inked in black showing contours, streams, lakes, roads, houses and other physical features likely to prove useful. A Van Dyke is made and blue-line prints run off. Upon a blue-line print the pine types are shown in tints of blue, green and purple, and classification as to control treatment required is shown by Roman numerals. Nonpine land is tinted yellow. Details such as location of fences, Ribes concentration, and other features useful principally in eradication work are not transferred to this map. However, boundaries of eradication zones are transferred to this map from the scout map and are indicated by a red line. In addition the location of the pine infection survey strips are shown, together with the per cent of infection found.

To recapitulate, the map now gives a picture of the location and extent of the pine areas classified as to diameter and as to control treatment required. It shows the extent of the proposed control area and it indicates the amount and distribution of pine infection. It does not show the species, number and distribution of Ribes nor does it indicate the eradication difficulties. Such data cannot be adequately shown on this 4 inch = 1 mile scale map. In working up cost estimates reference must necessarily be made to the scout map for Ribes data. The Preeradication Survey map is a permanent record of pine conditions in the town. It enables the town officials and pine owners to visualize the blister rust situation and gives them a check on our statement of conditions. This helps to create confidence in the management of control work. I believe that this alone justifies the cost of this mapping if the map served no other purpose.

The scout map supplies the Ribes factor which is necessary to an accurate estimate of eradication costs. Its primary object is to supply the data essential to efficient planning of the eradication work. It eliminates non-Ribes areas and definitely locates the areas to be crew worked. The degree of usefulness of course depends upon the experience of the scout and the thoroughness and good judgement with which his work has been accomplished.

There is another purpose to which the preeradication survey may be put. It is a determination of the natural white-pine-growing area of a township or other unit. By a natural white-pine-growing area I mean the portions of the town lying in valleys where pine naturally grows and where pastures are being abandoned and are coming into white pine. When the pine is mapped it will be observed, at least in Connecticut, that the great majority of stands occur in such locations and that the rest of the forest areas of the town are hardwood types where pine is only an occasional tree and pine reproduction is unlikely to develop in quantity. If such definite pine-growing areas were determined they might be officially reorganized as such and kept free from all Ribes regardless of their present location on the grounds that protection is being afforded a pine-growing area rather than to existing pine. Such a designation would encourage the planting of white pine in localities adaptable to it and would eventually result in cheaper eradication because of the lessened proportion of protective strip. Such designations have not yet been made for the purpose of complete eradication of Ribes therein but the idea holds out attractive possibilities.

DEMONSTRATION AREA CONVINCES NONPINE OWNER OF DESIRABILITY
OF BLISTER RUST CONTROL.

The following letter by an anonymous writer, which appeared in the Granite State Free Press for Oct. 21, gives such an interesting comment by a nonpine owner on the value of demonstration areas that we feel it will be of interest to the readers of the "News".

Lebanon, N. H.
October 19, 1932.

Editor of Free Press,
Lebanon, N. H.

May I use a small amount of the space in your paper to call to the people of Lebanon the fact that white pine blister rust is serious in their town. While I am not a pine owner and have not in the past given this forest tree disease much attention, the other day after reading the item in your paper about the demonstration area on the road to Meriden I went out and looked at the damage. Certainly this area is one that would make any "Doubting Thomas" admit that the rust kills pines and it proved to me that it is very easy for any one to see trees affected and not realize it until the tree was about dead. I had been over the road by the demonstration area many times before the lot was tagged and posted and I never realized that there was blister rust in the lot.

This demonstration proves the importance of carrying on the control work with the State and, as the blister rust agent stated to me, the important thing is to protect the trees before they are attacked by this disease. Since seeing this area I have noticed a number of pines in other sections of the town that appear to be hit and I for one hope that every voter will go out and see this area for it certainly is well worth their while. I believe that many who in the past have felt that it was a question for the pine owners alone to be interested in, will change their minds as I have, for after all our woodlands and pine forests mean a great deal to each one of us even if we do not own them ourselves, and the cost of protecting them is so small that we should all get behind this important work. In closing allow me to remind the readers of your paper that "seeing is believing" and urge all to look at the area as well as the many tagged pines along the road leading to the area from the State road.

(Signed) "Interested in Lebanon"

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INFORMATION DESIRED ON WORKING PRECIPITOUS SLOPES
Roy G. Pierce

Any agents who have had experience in working steep rock slides and mountain slides by means of ropes are requested to write me at Washington, for I find need of some expert information in working some long, dangerous slopes overhanging the Blackwater River in West Virginia. Please state kind and size of rope used and method of attachment at the top of the cliff, and other pertinent details. The slope I have in mind is from 25 to 50 feet above the water and extends upward from that point for 50 to 100 feet to the top of the bank where large trees are standing. Scouting for Ribes must be carried on on this steep 30 to 60 degree slope.

BLISTER RUST CONTROL OPERATIONS IN CALIFORNIA

W. V. Benedict, Calif.

Sugar pine, the world's largest and California's most valuable pine tree, occurs in a relatively narrow strip from southern Oregon through the Sierra Nevadas to lower California. Within this belt there is roughly estimated to be 35 billion board feet of commercial sugar pine timber valued at approximately \$122,500,000. The presence of well established infections of white pine blister rust in the Northwest and the expectancy of a southern spread into the commercial sugar pine areas made it early advisable to launch investigations in California to study control problems. Accordingly, two experimental projects, control reconnaissance and Ribes eradication, were inaugurated in 1926 to supply basic data for formulating a general control policy for the region.

Control Reconnaissance

Control reconnaissance aims to ascertain by a rapid and systematic survey the location and extent of the major sugar pine stands, the Ribes conditions existing therein, and other factors that might influence the costs of insuring such stands protection against blister rust. A total of 589,472 acres of sugar pine type, containing an average of 59 Ribes per acre, have been covered thus far at a cost of \$0.034 per acre.

An important phase of reconnaissance work started in 1932 is the sugar pine inventory survey of the entire State which is to be used in conjunction with control reconnaissance and experimental Ribes eradication data to formulate a blister rust control policy applicable to California forests. This survey is a joint undertaking with the United States Forest Service and is expected to be completed in a year. The work is conducted as follows:

All available timber estimates showing the stand of sugar pine by forties are assembled from private and government sources. Each forty, in addition to indicating the volume of sugar pine, designates the forty as sugar pine-ponderosa pine or sugar pine-fir type on the basis of amounts of these associated timber species in the cruise. Using the timber estimates as the foundation, a sugar pine type map is prepared on those portions of the area not covered by control reconnaissance. The finished type map will present a complete picture of the sugar pine resources of the State. Field work is done to fill any gaps in the types not covered by cruise data.

After all sugar pine types are located, a record of ownership is prepared showing federal, large private holdings (by individual owners) and miscellaneous small owners lumped together.

The complete survey will show:

1. The location of all sugar pine areas in California, both virgin and second growth, subdivided into sugar pine-ponderosa pine and sugar pine-fir types and segregated by ownership.

2. The total volume of sugar pine in the sugar pine type of the State by timber type and ownership.

3. The sugar pine producing capacity of different units, based on volume estimates and supplemented by site index data where available, to guide in deciding upon the advisability and relative urgency of control work.

4. An estimate of the total cost of blister rust control work on the areas selected, based on Ribes eradication and control reconnaissance data.

5. An order of priority for planning protection measures.

Experimental Ribes Eradication

Experimental Ribes eradication studies have been conducted in selected regions of the sugar pine belt for seven seasons. The principal objectives of this project are to develop and demonstrate practical methods of eradicating Ribes from areas adapted to the commercial production of sugar pine, and to acquire an understanding of the relation of Ribes growth habits to control measures. Experimental areas are located on the Stanislaus, Plumas and Lassen National Forests of the central and northern Sierra Nevada in the optimum range of sugar pine.

Methods of conducting eradication are fundamentally the same as in other regions. Control reconnaissance data augmented by additional Ribes cruises where needed, provide the necessary preliminary information. Three-man crews, each member of which is equipped with a special pick-mattock eradication tool, constitute the regular eradication unit.

By a system of checking and reworking, an efficiency in eradication of not to exceed 50 feet of live stem per acre left after eradication is attained. Frequently one and occasionally two reworkings are needed to insure satisfactory results.

Parts of the sugar pine type are practically free of Ribes and require no treatment. Other parts support a heavy growth and require intensive crew work. In the localities studied an unlogged area of sugar pine type will contain fewer Ribes and represent a lower protection cost than a logged area. Also a sugar pine-ponderosa pine type generally contains fewer Ribes than sugar pine-fir type. These differences are less marked in the northern Sierra Nevada. As is the case in other regions, stream type contains the greatest number of Ribes.

Table No. 1 summarizes the experimental Ribes eradication work done in California, segregated occurring to logged and unlogged areas and eradication types. Variations in the number of Ribes occurring in the different types are clearly shown, the sites where moisture is more abundant supporting the larger number of Ribes

Table No. 1 - Summary of Ribes Eradication

	Type	Acres Worked		Ribes Eradicated		Cost
		Amount	% of Total	Total Number	Per Acre	Per Acre
Unlogged	Stream	1,243.2	3.3	351,429	283	\$8.09
	Brush	687.7	1.9	89,699	130	4.74
	SP-Fir	6,750.9	18.2	272,970	40	1.25
	SP-PP-Fir	2,940.4	7.9	292,542	100	2.78
	SP-PP	11,639.8	31.3	249,020	21	.78
	Minor Types	518.0	1.4	10,725	21	.92
	Blocked out*	10,319.8	27.7	-	-	.03
Logged	Stream	162.5	.4	92,432	569	10.64
	SP-Fir	1,052.5	2.8	122,986	117	3.85
	SP-PP-Fir	414.2	1.1	43,817	106	1.86
	SP-PP	1,479.5	4.0	47,881	32	1.16
Totals		37,214.5	100.0	1,573,501	42	\$1.29

*Largely on the Lassen Forest and somewhat higher than the average for the region as a whole.

Costs of eradication are largely governed by Ribes abundance, although other factors encountered in working an area, such as brush cover, size of bushes, rock-outcroppings and topography, exert an important influence. The effect of logging causing an increase in Ribes and a concomitant rise in eradication costs is also shown. Permanent control of Ribes, especially in the more favorable sites, cannot be accomplished by one eradication even in undisturbed virgin stands. Disturbances to the soil and cover types attending logging, and to a certain extent fire, are conducive to Ribes germination and generally result in the establishment of a formidable Ribes flora. A necessary part of the eradication program is, therefore, the reeradication studies to determine rate of Ribes re-entry and additional work needed to insure their removal. Three of the eradication units, two in a logged region and one in an unlogged region, aggregating 14,375 acres, have been reworked. The logged areas show a reduction in Ribes from 59 per acre originally to 31 and in costs from \$2.12 per acre to \$0.90.

The unlogged area which was reworked in 1932 is a stand of uncut sugar pine on the Stanislaus Forest which was originally worked in 1928. In order to more fully understand the significance of reeradication, the results secured are compared in Table No. 2 with the results obtained in the initial eradication 4 years earlier.

Table No. 2 - Comparison of Reeradication with Initial Eradication
Dorrington Area - Stanislaus National Forest.

Type	Acres Worked		Ribes per Acre Removed		F. L. S.*per Acre Removed		Cost per Acre	
	Initial Eradication	First Re-erad.	Initial Eradication	First Re-erad.	Initial Eradication	First Re-erad.	Initial Eradication	First Re-erad.
Stream	207	207	183.1	38.8	2 960	206	5.64	1.51
Brush	87	52	297.9	94.9	3,993	443	5.70	2.61
SP-Fir	987	905	43.0	29.8	597	60	1.33	.89
SP-Ponderosa Pine	6,372	4,144	23.7	3.5	268	48	.82	.22
Blocked out	906	3,242	-	-	-	-	.03	.03
Total	8,559	8,550	31.3	6.4	401	37	\$1.00	\$.26

*Feet of live stem.

Costs have fallen almost fourfold, Ribes nearly fivefold. On a large percentage of the area additional work was not needed. Contrast these results with reeradication data secured for cutover areas on the same forest where costs and Ribes were but little more than halved. It is evident that permanent Ribes suppression for this locality will be much more readily and less expensively obtained in timbered regions.

Conditions in California, except for certain stream type areas in the northern Sierra Nevada, where Ribes inerme occurs, can under present known methods of Ribes eradication best be handled by hand-pulling methods. The experimental studies have shown that by these methods an initial efficiency of not to exceed 50 feet of live stem per acre can be attained at costs ranging from \$0.78 per acre in the more open types to \$8.09 per acre for stream type conditions. Periodic reworking will be needed, varying with logging status and original Ribes abundance, to insure permanent Ribes control. Nov. 1, 1932.

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ANOTHER REPORT ON THE USE OF THE UNEMPLOYED IN BLISTER RUST CONTROL

R. E. Wheeler, Mass.

Early in the spring when the chief engineer of the Springfield Water Works was interviewed regarding reeradication of their lands, he received the proposition whole-heartedly. He was glad of an opportunity to secure real work for some of the clamoring mob which was asking for it. He also felt the real importance of such work, and was not a bit reluctant in giving us full sway to do a thorough job of it. Since the last examination of the watershed, considerable land had been acquired, and some lands, which had been previously thrown out, were going to be planted to pine. We had nearly 10,000 acres to clear of Ribes.

We had five of the unemployed and found these men willing and anxious to do their very best. They grasped the work with a keen sense of accomplishing an important duty, and at all times were on the job. It was no picnic, nor friendly handout to them, and when the day's work was over, they felt they had honestly earned their wages, and had done something worthwhile. These men were certainly grateful for work, and expressed their appreciation by sincerely applying themselves to the best of their ability. They surely made good "Ribes Hounds".

(Note: An excellent summary "Blister Rust Control and Unemployment" appears in the October issue of New Hampshire Forests. Agent Thomas J. King has an interesting and instructive article, "New Boston Pioneers in Roadside Beautification", in the same issue. - Editor.)

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SEVERAL NEW BLISTER RUST INFECTIONS REPORTED IN WISCONSIN THIS FALL

Several new locations for blister rust infections have been reported in Wisconsin this fall. Two new counties were found infested, namely, Portage County where Ribes cynosbati was found heavily infected near Stevens Point, and Lincoln County where two bushes of R. cynosbati were found lightly infected near Merrill. Several new locations in counties previously infected were also reported. General infection was found on R. cynosbati near Florence in Florence County. In Marinette County, R. cynosbati was found infected in the Goodman School Forest. Infection was also found on R. hirtellum near Beaver Brook in Washburn County.

CONTROL WORK IN OSWEGO COUNTY, NEW YORK, IN 1932
H.W.Holcomb, N. Y.

The first initial control work performed in Oswego County, New York, (started this spring), was brought to a close September 15. It is felt that the season has been very successful regardless of the fact that it was the first time that work of this nature had been carried on here. The work was carried on primarily on plantations, due to the small amount of natural white pine found in the county.

There are 22 towns in this county, 16 of which were covered for the examination of plantations, and 15 for the removal of the European black currant (Ribes nigrum). In the 16 towns mentioned above, control work was carried out on 125 individual areas, 82,265 wild Ribes being removed. No difficulty was experienced in securing cooperation in the work carried on on large areas such as State and county parks, lumber companies, and some large private holdings.

In the black currant elimination work, 3,474 R. nigrum bushes were found and removed. These bushes were the property of 383 owners and averaged nine to a location. This necessitated making 10,625 interviews. In all cases the leaves were heavily infected with blister rust and had there been much natural pine in the county, no doubt plenty of pine infections would have been found. However, at one place where nine nigrum bushes were removed, the owner had near the bushes several good-sized white pine trees which were apparently free from any blister rust infection.

If each agent would relate the experiences he encounters in the elimination of Ribes, I believe it would make an interesting story. I had many peculiar cases here this season. Some owners objected strenuously to the removal of their bushes. However, I believe some of this objection was due to the lack of white pine in the sections where most of the bushes were found. It was difficult to convince the owners that the bushes must be removed when they would say, "There isn't a white pine tree within miles of here." Nevertheless, in making the 10,625 contacts we had only 50 or 60 owners that put up very much objection.

I noted in the September issue of the Blister Rust News that Agent Kresge mentioned the possibility of R. nigrum bushes being replanted after the elimination work had been carried out. I believe this will happen in several districts; in fact, several owners have mentioned that the bushes we removed this year would be replaced next spring. It is rather difficult to overcome this situation until R. nigrum bushes have been eradicated in every town in the State. For instance, here in my district, there are many R. nigrum bushes in the towns which were not reached this season, and in some cases these towns are only a few miles from the locations where nigrum bushes were removed. This leaves a possibility that some owners will slip over into the adjoining towns and bring back a few cuttings. I don't believe the percentage of such owners will be very great, but I do think there will be a few cases where the replanting will take place.

AN AID TO DEMONSTRATIONS

R. E. Wheeler, Mass.

Quoting Mr. Avery, "We have in this office an apparatus called Electro-Lens. This is fitted with the finest quality lens, automatically adjusted to universal focus. Place it on or over the object you wish to examine, without raising or lowering it in any manner. Plug into socket and turn on switch."

We used the Electro-Lens for the first time at the Eastern States Exposition at Springfield, Massachusetts. We found it very convenient and efficient and a great aid in creating interest. It attracted individual attention and greatly stimulated interest in our demonstration. It brought out clearly the distinguishing features of infection on Ribes leaves which one would fail to see with the naked eye, or even with an ordinary magnifying glass.

We believe that the Electro-Lens contributed greatly towards attracting people to our demonstration. We were extremely busy, while at other exhibits very little interest was being shown. Over 80,000 persons passed through our building and we felt at the end of the week as though we had talked to the whole United States.

If funds are available, it would be a good policy for every State Blister Rust Leader to have an Electro-Lens for use at demonstrations.

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NEW YORK AGENTS HOLD ANNUAL BLISTER RUST MEETING

H.G.Strait, N. Y.

The New York State annual blister rust meeting was held at Cairo, N. Y., on October 27 and 28. In addition to the New York group, those present were Dr. Martin and Al Fivaz of the Washington office, E. C. Filler of the Boston office, and Dr. Snell from Brown University. The meeting was devoted largely to indoor meetings at which were heard the reports of the agents and the discussions thereon, an address by Mr. Howard, Director of Lands and Forests of the State, and a brief summary of the year's work in the Northeastern States by Mr. Filler. Dr. Martin also gave an interesting talk on control work, which included some sidelights on the situation in the Western States, and Mr. Littlefield gave some interesting information on the results obtained in the reeradication of Ribes in the Montgomery County experimental plantation.

Mr. H. L. McIntyre, State Leader, presided and kept things moving in good shape. Lively discussions were entered into by all present. One afternoon was spent in a field trip to a nearby pine tract of over 100 acres which had been previously mapped and classified under the new mapping system recently adopted by the Bureau of Forest Pest Control. Much enthusiasm was shown in the field trip, and many interesting features in connection with mapping and classifying pine were brought out.

New York State had a banner year, over 166,000 acres having been cleared of Ribes. This was due to the excellent cooperation of the public and the unceasing efforts of the blister rust organization.

A WORD OF PRAISE
W.T. Roop, Mass.

An occasional word of praise is helpful, although at times it comes rather unexpectedly. Just recently I received a return card from one of our former cooperators in the town of Pepperell, Massachusetts, in reply to the formal REMINDER CARD that was mailed to him this spring. This particular cooperator, after filling in the card to notify us that he had made a reexamination of his "77.9 acres of land" and had found "only one" wild Ribes, appended the following comment:

"Your examiners a few years ago did very complete and careful work. I have found it of interest to try to keep their work up to date."

It is reassuring to find that our efforts to develop a continuing interest in our cooperators were certainly successful, at least in this one instance.

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GROWTH STUDIES OF PLANTED WHITE AND NORWAY PINE IN IOWA
H. N. Putnam, Wis.

On October 13, 1932, a survey was made on the Tama Indian Reservation in Iowa for the purpose of determining the extent of the job of protecting the eight acres of white pine against blister rust. About an hour of daylight remaining after this job was completed, the remainder of the day was spent in making a few measurements of the height and diameter growth of white and Norway pines planted in 1921, using four-year-old planting stock. The plantings studied were contiguous and pure. The soil here is a deep, rich loam. A row in each planting was chosen at random and the first 10 trees studied in each row. A pole 7 feet long, divided into feet, was used as a measuring stick. Owing to the fact that I was alone the recorded measurements are not strictly accurate, but it is believed that the errors are compensating. It was necessary to climb each tree, measure each trunk internode, hang onto the tree, hang onto the measuring stick and record the measurements while still up in the tree.

In Table No. 1. there is shown a summary of the measurements taken on 10 white pine and 10 Norway pine. Excellent growth is shown for both species. It may be observed that the white pine outdistanced the Norway pine in height growth, but in each case the Norway pine showed a better diameter growth than the same age white pine.

Table No. 1

Comparison of Average Growth of White Pine and Norway Pine Planted in 1921 Using Four-Year-Old Stock. Tama Indian Reservation, Tama, Iowa. Measurements Made October 13, 1932.

Crown Class	Pine Species	Number of Trees	Average D.B.H. (Inches)	Average Tree Height (Feet)
Dominant	W. P.	5	4.4	24.9
	N. P.	3	5.0	22.8
Codominant	W. P.	4	3.4	21.4
	N. P.	6	3.6	18.9
Overtopped	W. P.	1	1.3	13.8
	N. P.	1	1.8	9.5
All Classes	W. P.	10	3.7	22.4
	N. P.	10	3.9	19.1

It was possible only to measure the annual trunk internode growth of eight of the white pine on account of the coming of darkness. The results of these measurements are shown in Table No. 2. It may be observed that the years 1927 to 1929, inclusive, were years of best height growth. It may be that the effect of the drought is reflected in the height growth shown for 1931. Several measurements of four feet were recorded on individual trees in a single year.

Table No. 2

Average Annual Height Growth of White Pine Planted in 1921 Using Four-Year-Old Stock, Tama Indian Reservation, Tama, Iowa. Measurements Made Oct. 13, 1932.

Crown Class	No. Trees	Ave. DBH	Average Height Growth in Feet by Years												1921 & Earlier	Total
			1932	1931	1930	1929	1928	1927	1926	1925	1924	1923	1922			
Dom.	4	4.4	2.7	1.6	2.4	3.3	3.3	3.1	2.2	1.5	1.8	1.5	0.9	1.0	25.3	
Codom.	3	3.3	1.7	1.1	1.5	2.4	3.0	2.8	2.1	1.7	1.6	1.5	0.9	1.3	21.6	
Over-topped	1	1.3	1.0	1.4	1.9	2.7	2.2	0.5	1.3	1.4	1.0	0.2	0.1	0.1	13.8	
Total	8	3.6	2.1	1.4	2.0	2.9	2.9	2.7	2.1	1.6	1.6	1.3	0.8	1.1	22.5	

These pine plantations are just about the best that I have seen in the Lake States. Since planting they have made an average annual height growth of approximately 2 feet. The trees for the most part were straight and tall. There was no evidence of weevil injury apparent.

Dr. Jacob Breid, Superintendent of the Indian Reservation takes a great interest in these plantations and is anxious to have them protected against blister rust next spring. According to my estimate, in order to protect the eight acres of white pine it will necessitate the going over of approximately 133 acres. It is estimated that there are 43 acres requiring 15 man days of crew work to cover, and 90 acres requiring approximately 2 man days to cover by scouting. Ribes missouriense occur along fences and in woodlots and a few R. americanum were found along the stream.

These white pine plantations are certainly worth the cost of protection, not only for their intrinsic value, but chiefly because they serve as an excellent demonstration of what white pine can do in Iowa.

SUCCESSFUL SEASON REPORTED IN AGENT BARBER'S DISTRICT IN NEW YORK

A successful season in blister rust control work is reported in Agent Barber's district in Saratoga County, New York, control work being performed on 117 jobs totaling 20,140 acres. On about 100 of these jobs, the owners paid a part of the cost, or furnished labor. About 20 per cent of this acreage was worked by State scouts. Individual cooperation amounted to about \$2,000. In addition, the county spent \$413.00 on protecting county plantations, and \$242.00 of unemployment money was used on control work at the State Reservation. This project at the Reservation was reeradication work, but most of the other jobs were initial protection. A 1,500 foot protection zone is being established around all county plantings. About 90 per cent of the initial control work is now completed in the county. However, it is expected that a million trees will be planted on public lands in this county next year and reeradication will be necessary on some initially protected areas to maintain control conditions. It is also planned to use one crew on the Luther plantations next year.

AGENT BROCKWAY OF MASSACHUSETTS REPORTS A SUCCESSFUL SEASON

65,000 Acres of Pine Land Examined, 15,500 Wild
Currant and Gooseberry Bushes Destroyed.

The reexaminations of Plymouth County (Mass.) woodlands in connection with the control of the white pine blister rust, came to a close on September 10. This control work was completed in the entire pine area in Middleboro and in about three-fourths of the pine area in the towns of Marion and Rochester. In the work this season the conditions found in the above-named towns were similar to the findings of last year; namely, that seedling currant and gooseberry bushes had developed from dormant seed in the soil. Many owners of white pine tracts have gladly assisted in the work by furnishing labor to help in locating and destroying these bushes that were reaching menacing size. These owners fully realize that it is essential that their lands be rescouted periodically, because in the last analysis such procedure is cheap insurance against serious damage by this disease. One white pine owner remarked that he had found a single gooseberry bush that had diseased 39 young white pines nearby. That was sufficient to convince him that he should keep a sharper lookout than ever to make sure that he missed no bushes. In a few years this one bush if undisturbed, would have been responsible for a large number of dead pines. This is sound proof of why it is necessary to maintain a constant effort to eliminate these weeds of our white pine forests.

In Plymouth County, with the exception of a few towns, wild currant and gooseberry bushes are not particularly abundant, and, therefore, the cost of control to the individual owner has never been large. It is important to know that wherever these bushes are found the nearby pines have become diseased. The cooperating field work for the past few months has furnished protection to the white pines in Middleboro and to most of the white pines in Rochester and Marion. In the work of the season, in which more than 200 local property owners participated, 65,000 acres of pine-producing lands and their environs have been examined. On this area 15,500 wild currant and gooseberry bushes were found and destroyed for the protection of the pine. The areas in Marion and Rochester that could not be examined this year will be completed the first thing in the the spring of 1933, and other towns where pine is an important community asset will be reexamined in conjunction with these two towns. ****.

(Extract from "Plymouth County Farmer", October 15, 1932.)

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PUBLICATIONS

Riley, J. E. and Alton Miller - The Story of White Pine (An informational bulletin for school children dealing with the white pine blister rust, the white pine weevil, and forest fires), published by the Connecticut State Forester, September 1, 1932.

This excellent bulletin for school children is so well written and so strikingly illustrated that all the agents should have it in their files. The State Leaders in the East have received copies of this bulletin.

Root, G. A. - Blister Rust Control (in California in 1931), Monthly Bulletin of the State of California, Department of Agriculture, Vol. XX, No. 12, December, 1931. Sacramento, California.

CULTIVATED RIBES ELIMINATION PROCEDURE

By J. E. Riley, Jr.

(Continued from October Issue)

In the October issue of the Blister Rust News the cultivated Ribes elimination procedure in Connecticut was described. Readers of the News Letter may be interested in the instructions which were given to the men engaged in this work.

INSTRUCTIONS

(Cultivated Ribes Survey)

Please read the instructions carefully. If there is any further information desired consult the agent in charge of the survey for the town, or the New Haven office.

Preliminary Preparation

Before starting the survey explain the project to the town selectmen. Ask the local editor to run a story summarizing the project, citing the black currant law and appealing to the town people for cooperation. Display the warning posters in post office, village stores, on town bulletin boards and other places where people congregate. Do not place poster promiscuously along roads on poles, trees, fences, etc. Get permission of the proper authorities before posting.

Survey

Use U. S. topographic sheets or town maps as a guide in locating houses. Locate each house on map and number it to correspond to the number on the Cultivated Ribes Record card. Proceed from house to house and from block to block systematically as far as practicable.

Interview the owner if he is at home. Identify yourself as a State man representing the Connecticut Agricultural Experiment Station at New Haven. Hand him a leaflet, explain the project where advisable, ask for the information desired and obtain permission to look over the garden and grounds for the additional data required. Do not depend upon the owner's estimate as to the number, species and condition of the Ribes. Always check him on these points on the grounds that he might be mistaken as to the identity or classification of the bushes.

If the owner is not at home, interview a member of the household, and if no one is at home proceed with the examination of the grounds. Interview the owner later for permission for removal of Ribes. If permission is granted remove the European black currants (Ribes nigrum). Any other cultivated currant or gooseberry if within 900 feet of white pine worth protecting, should be removed with the owner's permission. If permission is refused send a copy of your cultivated Ribes Record card with all available data to the New Haven office, and tell the owner that we will take the matter up with him.

Record

Fill out the Cultivated Ribes Record card completely at the time the interview and examination is made and the bushes removed. The interviewer, examiner of Ribes and the man removing the bushes should all sign the card and date it at the time their job is performed.

The field copy may be made in pencil and kept for his files by the man in charge of the survey. A copy in ink should be sent to the New Haven office. In recording the data be sure of your facts. The European black currant must be positively identified and the classification of the cultivated Ribes should be carefully made. Black currants may be distinguished from all other Ribes by the yellow or amber resin dots on the underside of the leaves. The two black currants may be told apart as follows:

European Black Currant Ribes nigrum

1. Resin dots on under side of leaves only.
2. Branches and twigs are round.
3. Leaves and stems have a strong, disagreeable, spicy odor when crushed.
4. Fruit smooth, black, pungent, somewhat musky.
5. Flowers, greenish or whitish, saucer-shaped or open bell-shaped; racemes nodding, short, 5 to 10 flowers.

American Black Currant Ribes americanum

1. Resin dots on both sides of leaves. A magnifying glass may sometimes be necessary to see them on the upper surface.
2. Branches and twigs are angular or ridged.
3. Leaves and stems do not have strong, disagreeable odor when crushed.
4. Fruit smooth and black but not pungent or musky.
5. Flowers, greenish-white or yellowish, cylindrical-bell-shaped; racemes pendulous, many flowered.

Responsibility of Employees

You are representatives of the Connecticut Agricultural Experiment Station, and as such are expected to be courteous and considerate at all times regardless of the reception encountered. If you are refused information or permission to examine the premises you may mention the law as a matter of fact, but do not threaten. Say that you are instructed to refer the matter to the New Haven office.

Never represent yourselves as Federal men. The Federal Government has no authority in this matter. Your authority comes from the State Legislature through the Director of the Experiment Station.

Always carry your identification card and display it when requested.

RAISING RUST RESISTANT PINE

Charles R. Meek, Chief of the Bureau of Forest Extension, has ordered ten pounds of Macedonian pine (Pinus peuce) seed which will be sown in the State Forest tree nurseries and the seedlings later planted as an experiment to determine its possibilities for reforestation in Pennsylvania. The Macedonian pine is a white (five-needled) pine, but apparently is resistant to the dreaded white pine blister rust.

(Extract from the Service Letter of the Pa. Dept. of Forests and Waters, Oct. 27, 1932)

SIMPLIFIED FORM OF ADDRESSES FOR RURAL ROUTE BOX HOLDER
NOW PERMITTED BY POSTAL REGULATIONS
G. S. Doore, Mass.

The new arrangement of the Post Office Department (order No. 2639, June 30, 1932, amending paragraph 6, section 457 postal laws and regulations) permits more general use of the rural mail box. The regulations now permit mailers to send out a batch of cards, letters, or bulletins to each of the post offices with instructions to distribute them along the rural routes.

The new Postal Guide contains a list showing the total number of box holders on every rural route in the United States, and by addressing letters merely to box holders, our informational material can reach nearly half the population of the entire country if necessary. Postal Guides in the past have listed the total number of routes, but never have revealed the number of box holders on each route. It was formerly necessary, however, to determine from each post office the number of boxes on each route; then address each letter to the particular box holder by name or number of the box. Under the new system, the mailer's task is greatly simplified and costs can be cut. When it is desired to send material to every rural route box holder served from a particular post office, the only address necessary hereafter will be the words "Rural Route Box Holder" with the name of the town and State.

Thus, any organization wishing to send mail matter to all residents of any particular rural district, may refer to the Postal Guide to determine the number of box holders in the district; then address that specific number of letters and put them so far as practicable in packages of 50, each package properly labeled in accordance with certain regulations of the Post Office Department. This simplified practice will eliminate much unnecessary labor and expense on the part of the mail user.

PRAISE FOR BLISTER RUST NEWS

Professor Forrest C. Strong, Research Assistant in Plant Pathology at the Michigan State College of Agriculture and Applied Science, speaks a good word for the Blister Rust News. He writes:

"This publication (the Blister Rust News) is very valuable to me since it is newsy, it keeps abreast of the times in blister rust control, and it is an excellent medium for student use in Forest Pathology courses. It promotes a more live interest in this particular phase of plant disease study and control."

NEW ENGLAND IMPORTANT IN PRODUCTION OF WHITE PINE AND SPRUCE

"Although the lumber production in the New England States in 1930 was only 607,668,000 feet, or 2 per cent of that of the country as a whole, New Hampshire and Maine were third and fourth of all States in production of white pine, being exceeded only by Idaho and Minnesota, according to a State survey of the lumber industry by the National Lumber Manufacturers Association. Maine was third of all States in spruce production, following Washington and Oregon, and fourth in production of birch, with Vermont fifth and New Hampshire sixth. One-half of the lumber produced in New England in 1930 was white pine. Spruce and hemlock were other important softwoods; birch, maple and oak, the leading hardwoods.

"In New England much of the softwood lumber consumed is in building and construction, in box factories and in sash, door and millwork plants, with some used in the car construction industry and in ship and boat building. Principal softwoods used in the wood-consuming factories are white pine, Southern pine and spruce. ****"

(Extract from the "New York Times", October 8, 1932.)

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NEW TREE DISEASE ON WHITE AND RED PINES ACTIVE IN NEW YORK

According to an article in the Forest Worker for September, 1932, a disease which attacks white and red pines has made considerable headway in plantations owned by the city of Rochester, New York, on Hemlock and Canadice Lakes in southwestern Ontario County and also in white pine plantations of the Norwich Cemetery Association at Norwich, where it was first noticed in 1928. H. H. York of the New York State Conservation Department is conducting studies of the disease, which appears to be caused by a fungus, as yet unidentified, operating on the base of the tree trunk and the adjacent portions of the roots. A profuse exudation of resin at the base of the trunk, which permeates the soil for several inches around the tree, is caused by the disease through enlargement and breaking down of the resin pores in the inner bark and in the wood. It is considered possible that the infection may spread through the ground, as living trees surrounding one killed by the disease were all found to be infected. Trees live three to five years after being attacked. Theories as to the cause of the trouble have so far been proved negative by the investigation.

H.T.W.

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FORESTRY FELLOWSHIPS OFFERED

Fellowships in forestry are again being offered by the Charles Lathrop Pack Forest Education Board. Applications for fellowships for 1933-34 must be made to the Secretary of the Board at 1214 Sixteenth Street, N.W., Washington, D. C., by January 1, 1933. Application forms and additional information will be furnished by the Secretary on request.

December, 1932



THE BLISTER RUST NEWS

Issued by the Division of Blister Rust Control
and the Cooperating States

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U. S. Department of Agriculture
Bureau of Plant Industry
Division of Blister Rust Control
Washington, D. C.

SUMMARY OF 1932 FIELD SEASON IN MASSACHUSETTS
C. C. Perry, Mass.

Despite a 38% reduction in the available State appropriation for blister rust control work in Massachusetts, the loyal efforts of the personnel and the continued interest on the part of local property owners, made it possible to carry on and accomplish commendable results during the 1932 field season. In the work of the year, 800 property owners (an increase of 109% over 1931), participated in regular control work, and thereby assisted in the examination of 161,606 acres of white pine lands and areas immediately adjacent thereto. This area represents a 40% increase over the acreage cleared of Ribes in 1931. On the area examined 334,353 wild Ribes were found and disposed of. The only decrease (54%) in activities related to the removal of cultivated Ribes as should be expected from the fact that 80% of the 1932 work related to reeradication. It was necessary, however, to condemn 3,071 cultivated Ribes because of their proximity to valuable white pines. Cooperative expenditures by local owners and other State departments owning forest land aggregated the equivalent of \$6,618.32, an increase of 60%. The average cost per acre figures at 10¢.

In the special black currant location and elimination work, the canvass was under way in 31 townships in Barnstable, Essex, Middlesex and Worcester Counties. This canvass involved the careful search of 33,599 properties. On these locations, patches of black currants totalling 2,197 bushes were found and destroyed. In this special project, 239 owners cooperated in the actual removal of their Ribes.
December 6, 1932.

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BLISTER RUST INFECTIONS IN MICHIGAN

Upper Peninsula

As a result of a blister rust scouting trip this fall in the three counties of Ontonagon, Houghton and Keweenaw, Agent Kroeber reports that infection is widespread on cultivated black currants throughout the three counties, and is particularly severe in Houghton County. No infection was found on white pines. Mr. Kroeber writes: "The severity of infection on Ribes nigrum in Houghton County can better be appreciated when I say that of several hundred bushes examined, every bush was found to be heavily infected. I could not find a single uninfected bush in the vicinity of the city of Houghton. To further illustrate the intensity of the disease, I picked several bouquets of nigrum branches from many bushes and then examined each leaf and could not find a single leaf without infection. All this was suprising in view of the fact that Mr. Putnam and I had such a hard time finding even a little infection on the same bushes in July."

Lower Peninsula

Agent Thompson reports that the season of 1932 finds a gradual spread of blister rust on inspected areas in new territory. Antrim, Mason, Benzie and Manistee Counties have joined the ranks of infected counties. The infections found were all on black currants. Infection on wild Ribes was also reported for the first time in Leelanau County.

ERADICATION OF BLISTER RUST CANKERS AT SARATOGA SPRINGS
STATE RESERVATION, NEW YORK
P. E. Barber, New York

Some interesting work has been done here in Saratoga County, New York, on the eradication of blister rust infections on the State Reservation. The Reservation consists of some 1,100 acres. About 75 acres of this land is planted to white pine, the majority of which is 21 years old, while there are about 700 acres of scattered, natural white pine.

The work was performed under the direction of H. G. Harris, State Foreman, who was assisted by two regular employees of the Reservation. The work was carried on in a systematic manner similar to the regular formation for Ribes crews. Each tree was inspected for cankers. The crewman who had had no previous experience on blister rust work were able to distinguish the cankers with ease after the first day.

The plantations and dense reproduction had previously been pruned for at least six feet which aided the progress of the work. A total of 112 diseased trees were found. Forty-nine of these trees were dead, dying, or possessed large trunk cankers, and were removed. Sixty-three trees were pruned of limb cankers. The following table shows the year of the infected wood on the diseased trees. In no instance was there more than one canker found on one tree.

Year	'18	'19	'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30
No. of Cankers	1	1	1	3	5	4	17	31	41	3	4	0	1

It is probable that more trees were diseased between 1918 and 1923 but have been removed. The plantations have been cleaned of dead and dying trees almost every year and undoubtedly the pruning operations, previously done, have prevented many limb infections from reaching the trunks.

The Reservation was initially cleared of Ribes in 1926 when 4,726 bushes were pulled on 897 acres. This eradication work was done late in the season and according to the infections found which occurred in the year 1926, the sporidia must have been in the air previous to the eradication. The total open area of the Reservation is mowed annually and this had been done when the 1926 eradication work was started. The mowing-off of the Ribes undoubtedly accounts for the fact that more Ribes were found in 1929 (8,793), when the area was reworked, than were initially pulled. The area was again gone over this year and 2,051 Ribes were found on 927 acres.

The pruning work required 150 man hours at a cost of \$258.75 or about \$0.30 per acre. Only the cost of labor is included in the pruning. The cost figures are rather high on account of the wages of the workers, one of whom received \$5.00; the other, \$4.00 per day. The labor includes hauling and burning all brush as well as tagging numerous diseased trees. A check will be made annually on several trees from which diseased limbs were pruned and trunk cankers cut out.

SOME PROBLEMS CONFRONTING BLISTER RUST CONTROL EFFORTS
IN THE INLAND EMPIRE

C. C. Strong, Wash.

Controlling blister rust in the Inland Empire white pine belt is in no sense of the word a simple procedure, as anyone familiar with conditions can testify. Some of the obstacles standing in the way of control are as follows:

1. Topography. For the most part the white pine stands are confined to an area of rugged topography. However, a sizeable percentage of the commercial white pine land occupies areas varying in topography from rolling to moderately rugged. It is on these latter areas that white pine constitutes the highest percentage of the total forest crop and occurs in most solid blocks. Furthermore, it is on the latter areas that commercial timber is found to have suffered least from forest fires. It may be assumed that the relative value and accessibility of the latter timber enabled and necessitated better protection but topography is most assuredly an important contributing factor responsible for extensive burning in the more rugged regions.

But what has this to do with blister rust control? First and foremost, rugged topography begets tough working conditions not only for Ribes eradication but also for other forest protective work and lumbering. Furthermore, conditions on these rugged areas have resulted in the establishment of Ribes here, there and everywhere. Control costs will be relatively higher and pine values per average acre relatively lower than will be the case in less rugged areas. Obviously there is a lower limit of pine value present below which blister rust control is not economically feasible. What is that limit and where is the individual who can apply it?

2. Climate. Blister rust, due to the aggregate combined effect of temperature, winds, moisture and topography, finds very congenial surroundings in the Inland Empire white pine belt. This statement is not based upon conjecture but rather upon the degree to which this disease has made itself "at home" during its brief sojourn. In truth all indications point to the fact that this pest intends to make the Inland Empire its permanent official western headquarters. Whether California is to later have the honor remains to be settled. Suffice to say that the western white pine belt at the present time is in great immediate danger from the rust.

Climate in the Inland Empire seems to be ideal for rapid spread and development of blister rust. Topography is such as to magnify the development. The convergence of local winds and breezes buoy aeciospores skyward where cross currents and prevailing winds disseminate them to the four corners of the white pine belt. Frequent local winds also serve to transport pine infecting sporidia to nearby white pines. Moisture and temperature conditions are ideal for blister rust development. Thus, there appears to be little more needed to bring about the maximum development of the disease and the problem arising is to push control measures in order to prevent heavy commercial damage to white pine. Certainly halfway measures can not accomplish the desired end.

3. The Concrete Problem. Destruction of Ribes is, of course, the medium by which blister rust is controlled. Although these bushes are present in

large numbers over the entire white pine belt they vary greatly in quantity and species. Three conditions of Ribes development in the Inland Empire, each calling for a different method of working, are now recognized. These are:

A. Ribes lacustre and Ribes viscosissimum types.

Ribes lacustre (prickly currant) is found generally distributed over the entire region in both stream and upland types. "Stream type" is herein used to designate the area bordering streams, ponds and other bodies of water and including swampy land where, due to resultant moisture conditions, the ground cover is distinctly different from that on the balance of the area referred to in this discussion as "upland". Ribes viscosissimum (sticky currant) is generally confined to the upland types and may vary from practically none to ten thousand, or even more, bushes per acre. So heavy is the Ribes growth on much of the rugged, severely burned back country that blister rust control on these portions of the area can not be seriously considered. For the most part, however, areas having only these two species present can be effectively and efficiently treated by the hand-pulling method.

B. Ribes petiolare stream type.

Here Ribes petiolare (wild black currant), the most dangerous species with which the control organization is faced, exists in quantities ranging from scattered clumps to practically unbroken masses from one to four or five, and sometimes even wider, chains in width and often several miles in length along water courses. Hand pulling is out of the question. The method in use is spraying adequately with a solution of sodium chlorate (NaClO_3). Excellent results have simplified this problem although this species is the only one which can be treated by this method. The intermingled bushes of other species must be hand pulled.

C. Ribes inerme stream types.

Ribes inerme (white-stemmed gooseberry) stream type constitutes less than one-half of one per cent of the total area proposed for protection against blister rust, yet this small area has constituted a "thorn in the side" of the Ribes eradication force. It ranges in quantity present from the upper limit of that which proves practical to hand pull to 300,000 or even 400,000 feet of live stem per acre. All efforts to effect a good kill at a nonprohibitive cost through the application of chemicals have proved impracticable thus far. The method of treatment which now appears most practical is the complete skinning of the land surface by means of a caterpillar type heavy tractor on the front of which is mounted an adjustable bulldozer attachment with teeth and crossbar designed to rip all brush and Ribes from the ground. This machine is operated in such a manner as to shove the liberated brush, Ribes and debris into piles which are afterward burned when the fuel is dry enough and safe burning conditions prevail. This method of treatment is necessarily expensive although it shows such promise that further large scale tests of the method are contemplated. The probable enhanced grazing value of land so treated, both to game and stock needed on forest operations, may partially offset the cost of treatment.

These problems by no means cover the entire field, nor is it presumed that other regions do not have problems as difficult of solution. The important point is that both physical and economic obstacles confront workers in their efforts to control blister rust and that the sweat of the brow in surmounting the physical obstacles may give impetus to clear thinking as regards economic problems.

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EFFECTIVENESS OF BLISTER RUST INFORMATIONAL ACTIVITIES

William Clave, Mass.

At a conference of Massachusetts blister rust control agents last winter, it was suggested that we attempt to determine the relative effectiveness of the different phases of educational work in presenting to the public a clear understanding of the white pine blister rust and its control. To this end, a number of persons met at one time or another were questioned as to the source of their information on blister rust control. In Worcester County, 63 persons were questioned. Some were individuals met by the agent in the course of black currant or wild Ribes eradication work, while others were those met casually, or socially. After the first interviews it was apparent that not only was it important to determine the source of their information, but also the accuracy and completeness of the information gained from each source. In some cases the knowledge had been acquired from two or more sources, and in that event the person was asked to give the source of the most complete information. We were a little charitable perhaps in rating the accuracy and completeness of the information. If, for example, a man knew that currant and gooseberry bushes were the source of the trouble, his information was recorded as fair even though he was uncertain as to whether the trouble was caused by an insect or a disease. Information as to distance of spread varied from 200 yards to three-fourths of a mile. Information was listed as good if the person questioned knew that blister rust was a disease of white pine, and currant and gooseberry bushes, and that it could not spread directly from pine to pine. The following is a summary of the results of these queries:

<u>Source of Information</u>	<u>Replies Classified as to Accuracy and Completeness</u>			
	<u>Good</u>	<u>Fair</u>	<u>Poor</u>	<u>Total</u>
Reading (newspapers, magazines, circulars)	8	14	5	27
Fair & Window Displays	5	11	0	16
Meetings	4	2	0	6
Posters	0	6	0	6
Roadside Demonstrations	1	3	0	4
Told by Someone Else	0	1	0	1
No Information				<u>3</u>
Total Number Interviewed				63

The records would indicate that a majority of the people had seen, heard, or read about blister rust, but in most cases their conception of it was somewhat vague. These records relate to but one district, and experience elsewhere might show different results. In any event, such studies if sufficiently general might be helpful in determining ways and means of increasing the effectiveness of our informational service.

December 7, 1932.

AGENT RICHARDSON COMMENTS ON DEMONSTRATION AREA

In the November Blister Rust News, page 203, there appeared an interesting letter by a nonpine owner on the value of a demonstration area near Lebanon, New Hampshire. Agent G. F. Richardson comments as follows concerning this area:

The demonstration area referred to is located in Lebanon on a section of what was formerly the State road between Lebanon and Meriden but which, due to the realignment of the State road, is now but lightly traveled. It was found by Agent Richardson. The infection, in the main, is in a plantation approximately two acres in extent. The trees average 12 to 15 feet high and the infection 53 per cent. Fifty of the infected trees were dead.

To call the attention of the traveling public to the area, signs have been placed at both ends where the older road joins the new section and read:

B L I S T E R R U S T

Demonstration

On Parallel Road

An Inspection is Worth Your While

U. S. Department
of Agriculture

State
Forestry Department

The brush and the lower branches of the pine have been removed in order that the area may be more readily seen from the roadway and the trunk cankers visible from a distance. A permanent register is located in the area and to date 35 to 40 have registered.

(Note: The laying out of this roadside demonstration infection area was somewhat in the nature of an experiment. It has proved so satisfactory from the standpoint of its educational value that State Leader Newman has requested the New Hampshire agents to be on the lookout for similar areas that they may also be used for demonstration purposes even though they, like this area, may not be on a main highway. He feels that they serve as the "silent salesmen" of the educational program. - T. J. King, Assoc. Editor.)

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GOOD RESULTS SECURED FROM DEMONSTRATION AREA

Thomas L. Kane, N. H.

The Littleton, New Hampshire, demonstration area known as the "Billo-deau Lot", did not show as large a registration this past summer as in 1931. However, the writer received more requests for pine inspection from this summer's list than he did the year previous. The inspection of 10 lots resulted in receiving private cooperation from four individuals - the work to be carried on in 1933. Although private cooperation is not stressed in New Hampshire owing to the amount of town cooperation we have had, the writer has had many requests to carry on this kind of work after individual examinations. In going back over my files recently it came to my attention that since 1922, private cooperators have contributed close to \$11,000 for control work in my district. Most of this work came from individual pine examinations so I am strongly in favor of demonstration areas, like the one in Littleton, as a means of securing these requests.

BLISTER RUST SPECIMENS SHOW PHOMA

Roy G. Pierce

Several interesting specimens of white pine have been received from Mr. R. P. Fatzinger recently. The specimens were collected at the Halfway Camp plantation in Union County, Pennsylvania, on November 10 by Mr. Fatzinger. One specimen was 3 inches in diameter at the probable point of entrance of the disease, and above this point of entrance the canker extended $13\frac{1}{2}$ inches. The peculiar thing, however, is that the only evidence of the rust is a narrow margin of orange yellow color outlining the canker, the discoloration averaging but $1/2$ inch in width. No pycnial spots or scars, nor aecial pustules are visible. To account for this we find "so-called" Phoma leaving its ridged boundary in four distinct inverted V's.

Specimen No. 2 is $3\frac{1}{4}$ inches in diameter at the center of the canker, the canker being 22 inches long. Pycnial spots are very abundant, extending out to the edge of the discolored area. This discoloration is very marked. At the center of the canker where we would ordinarily expect to find formation of aecia, aecial pustules, or cracked bark of old pustules, we find an elliptical canker formed by the "so-called" Phoma. This Phoma seems to have prevented aecial formation in these two specimens. In this second specimen, Phoma was not as active as in the first, for abundant pycnial formation was present. A copious resin flow from the central area of the canker is seen on the second specimen.

Phoma has been found associated with cankers since the discovery of rust in this country and while it may prevent aecial formation, it does not do so to a sufficient extent to be more than a minor factor in inhibiting the spread of the disease.

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MICHIGAN MEN EMPLOYED TO AID IN SEEDING OF WHITE PINE

J. K. Kroeber, Mich.

At the close of the eradication season a city engineer told the blister rust agent who had been handling an eradication crew for the city, of a plan he had for giving his men additional work. He decided that the open patches in the pine stand which had been protected should be planted with pine seed, so he proposed to have a number of the men collect cones and plant them. The agent sensed that the engineer was on the wrong track so suggested that they go out together and look the area over. One look at the hundreds of empty cones on the trees told the agent that it was too late to collect cones for seed and he told the engineer so, explaining how each cone contained many seeds which upon ripening fell to the ground leaving only the empty containers in the trees. The two then looked over the ground in the open places and found numerous pine seeds lying on the ground litter. The forester revived the engineer's hopes of giving men work and planting up the open spaces when he suggested that a number of men with rakes or garbage hooks could profitably be employed in stirring up the duff thus allowing the seed to come in contact with the mineral soil. The engineer was delighted to know that he could give worthwhile work to some of his men, and set out at once to get the rakes and hooks. A few years hence and the results of the work should be apparent. Helping nature through the simple expedient of stirring the seed into mineral soil will prove much more profitable and less laborious than planting empty pine cones.

1932 OBSERVATIONS ON THE CRANE INFECTION PLOT
IPSWICH, MASSACHUSETTS

W. T. Roop, Mass.

The 1932 observations on the Crane infection plot at Ipswich, Massachusetts, made on November 22, were rather noteworthy. Our predictions of a year ago that seven trees on this plot would die during the year 1932 were exceeded and we were obliged to record a total of nine more trees that had finally succumbed to the rust.

A rather unusual observation was made on one tree. This tree was originally recorded as infected with a canker of 1920 origin on a low branch. In 1928, it was our observation that the branch was dead from shading, and apparently the canker had also ceased to function. Furthermore, we felt that the canker was sufficiently distant from the main stem so that the filaments of the fungus had not reached the trunk. The classification of the tree was changed at that time, therefore, to "recovered". This observation was in error for in making our examinations of the tree this year we noted pycnial scars on the trunk at the point where the branch had entered the main stem. This tree is now recorded as "will die". The summary of our 1932 observations as compared with the records of 1923 tell the following story:

	<u>1923</u>	<u>1932</u>
Number of trees - noninfected	36	48
Number of trees - dead	1	80
Number of trees - will die	102	14
Number of trees - will recover	<u>4</u>	<u>1</u>
Total number of trees	143	143
Number of active cankers	1,089	16(all trunk cankers)

The increase shown in the number of healthy trees results from the fact that some trees apparently recovered, due to the dying of branch cankers before the disease reached the trunk.

For the first time since the plot was established in 1923, white pine reproduction was noted, and three seedlings were recorded as the first evidence of restocking. It is also of interest to note that during the past summer a few wild Ribes (*R. hirtellum*) were noticed along the boundary stone walls - the first evidence of Ribes "come-back" on the area since the initial control work of the 1923 field season. For this reason a very special effort was made to examine the trees for recently developed infections, but as heretofore, none could be found.

This plot becomes more interesting each year, and we are certain that from such areas as this one, much can be learned regarding the progress of the disease in a pine area. Incidentally, this particular area when used for demonstration purposes has been the means of convincing many a hesitant cooperator.

Dec. 6, 1932.

(Note: The last report on the Crane Infection Plot was given in the Blister Rust News for December, 1930, page 314. - Editor)

BLISTER RUST INFECTIONS IN WISCONSIN

T. F. Kouba, Wis.

During 1932, blister rust was discovered in 11 additional counties in Wisconsin where the disease had not been found before. In three of these counties, Portage, Vernon and Wood, the rust was discovered on both pine and Ribes, and in eight counties, Ashland, Brown, Door, Grant, Kewanee, LaCrosse, Lincoln and Marinette, it was found on Ribes only. These newly infected counties are located in all sections of the State except the southeastern portion which is apparently free from the disease.

In Vernon County, heavy rust infection was found on Ribes sativum; in Ashland County infection was found on one Ribes nigrum leaf, and in the remaining nine counties rust was found in varying degrees on Ribes cynosbati.

This makes a total of 33 counties in the State where blister rust has been found either on pine or Ribes since the disease was discovered here in 1915.

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INFECTIONS AT TAMWORTH, NEW HAMPSHIRE

S. H. Boomer, N.H.

The first of October the writer was called to Tamworth, New Hampshire, to examine a sick white pine on the property of a summer resident. The tree in question and two others the same size formed a background for a newly built log cabin. They were about forty years old. The land had been examined for currant and gooseberry bushes in 1921, but the fine white pine which framed the eastern end of the cabin had a yellow top indicating a trunk canker. The canker was about 15 feet from the top of the tree. The top will be removed below the canker in the hope that the tree may recover, which is doubtful as this top takes with it a large proportion of the green branches. The canker had apparently come in on 1915 wood.

Twelve other large pines on the lot were found to have trunk cankers about the same height from the ground, that is, 25 feet. A nearby swamp, which is suspected as the source of infection, will be examined in the spring of 1933. The writer found only one new infection and that was of 1926 origin.

The effect of control measures is impressive as is also the length of time necessary to kill large pines.

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EXHIBIT AT THE ACADIA NATIONAL PARK AROUSES INTEREST IN BLISTER RUST

The success of the blister rust exhibit, prepared by Mr. K. K. Stimson last summer at the Acadia National Park in Maine, in arousing interest in blister rust is shown by the fact that about 200 persons have signed the register and requested additional information concerning the disease and its control. In response to their interest a circular letter and a copy of Miscellaneous Publication No. 27 was forwarded to each.

H.T.W.

EXPERIMENTS IN SALVAGING WHITE PINE

R. P. Fatzinger, Pa.

During October the field work was completed on two study plots in Union and Pike Counties, Pennsylvania. The purpose of these studies is mainly to determine if it is possible and economically feasible to salvage 200 to 240 final crop trees per acre in a badly diseased white pine plantation by selecting, pruning, and releasing that number of the most promising and least injured individuals and locating and cutting from them cankers in the upper crown not reached by a normal pruning operation; also to determine the cost in man hours per acre for the first year's treatment and any subsequent treatments found necessary.

At each location, two sample plots 52 feet by 104 feet in size and 1/8 acre in area were laid out and permanently located. One plot was on either side of and adjoining an isolation strip 14 feet wide. The plots selected were as nearly comparable as possible as to survival, spacing, crown density, size of trees, and relative importance of other species of trees in the plots. All trees on both plots, as well as on the isolation strip and in a zone 7 feet wide around the rest of the plots, were tagged. The location and tag number of all trees was plotted on 10 by 10 inch cross section paper. Between 25 and 30 white pine trees on each plot were selected and marked with white paint as final crop trees. Consideration was given to the location and form of the trees and the scarcity of cankers on the upper branches. The mid-point of the living crown was also marked by paint on these trees. All trees of any species on the treatment plot and its 7 foot border that materially restricted the growth of the selected crop trees were marked for girdling.

The height, diameter, crown class, and number and condition of blister rust cankers by year of infection were determined for each white pine tree on the two plots. In addition the species, height, and crown class of all white pines on the 7 foot border of each plot and all trees of other species on the plots and borders were recorded.

One plot was then treated as follows:

A. All the branches from the lower half of the living crown of the selected crop trees and all of the dead branches below the living crown were removed with a pruning saw or clippers as close as possible to the trunk without injuring the stem bark.

B. Infected twigs and branches were removed from the upper half of the crown of the selected crop trees with pruning clippers. An effort was made to save as much as possible of the healthy portions of diseased branches. This work was done without reference to the data obtained when the infection data was secured.

C. The slash was distributed on the ground above the root systems of the pruned trees to serve as a mulch.

D. All trees on the plot and border that had been marked as interfering with the growth of the selected trees were girdled with an axe.

The exact time in man hours, to tenths, was recorded for each separate operation in the study. Also, the number of cuts made in the upper crown to eliminate the cankers found there, and the number of cankers removed.

The adjoining plot and its 7 foot border was left untouched as a check plot.

A report on the data secured will be made as soon as the field data can be summarized and analyzed.

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SPREAD OF PINE RUST ALARMING

Future of Lumbering is Threatened

Declaring that the blister rust situation in the western pine States constitutes a national emergency, the Board of Directors of the American Forestry Association has adopted resolutions supporting federal aid in meeting the emergency and recommending that State and communities develop unemployment relief in curbing the spread of the tree-destroying disease.

The region affected is known as "America's Inland Empire", the State of Idaho, Montana and eastern Washington and Oregon. The findings of the Association are based on a survey made by Ovid Butler, its secretary, who pointed out that the protection work should be done immediately, on a basis of an eight-year program, which would provide labor for an average of 150,000 man-days per season.

If not controlled, Mr. Butler believes, blister rust will lead to an early period of forced cutting of western white pine. The effect unquestionably will be far reaching upon forestry and the lumber industry throughout the United States. Selective cutting will be out of the question and forced cutting of a great volume of white pine in the Inland Empire will contribute to the national overproduction of lumber which already is slowly breaking the back of the lumber industry and depreciating stumpage values to a point that precludes the practice of sustained forest management as a sound business enterprise.

Mr. Butler believes that the blister rust situation in the Inland Empire constitutes an emergency of national concern and one that should be met with the best efforts possible. Unless more adequate protection is provided within the next five or ten years, the situation in view will be out of hand, according to blister rust experts.

Protection of pine against blister rust consists of eradicating currant and gooseberry plants in proximity to the pine.

"The wild growth of these plants in the Idaho mountains is heavy," says Mr. Butler, "particularly along streams where the concentration of host plants constitute the most immediate danger of rapid spread of the disease. The Bureau of Plant Industry estimates the protection will average \$2.50 an acre or \$7,200,000 to complete control work on the 3,000,000 acres of the best pine land. An eight-year program of control therefore calls for \$900,000 annually, an increase of about \$550,000 over the current scale of funds now available."

EXPERIMENTS TO DETERMINE THE SUSCEPTIBILITY OF RIBES ALPINUM LINN.

T. F. Kouba, Wis.

Because of the increasing popularity of Ribes alpinum Linn. (Alpine currant) as an ornamental shrub in Wisconsin, this department has made an attempt to determine the susceptibility or immunity of this Ribes species to Cronartium ribicola under field conditions. The work was started because there was some question as to the susceptibility of this Ribes. A half dozen Alpine currant bushes were planted in a heavy blister-rust infection center in Shawano County early last spring. Observations of these currants were made several times throughout the summer and autumn, but on no occasion did any of their leaves show infection. This was in contrast to the Ribes cynosbati bushes which were planted as checks and which became heavily infected; so heavily infected that some bushes had lost most of their foliage by the middle of August.

Due to the fact that the work has progressed for only the past season very little has been definitely proven except that R. alpinum is apparently less subject to Cronartium ribicola than many of the other Ribes species found within the State. It will be possible to draw further and more exact conclusions after the work has been carried on for a period of years.

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PINUS PEUCE SEEDLINGS

Mr. A. E. Fivaz, in a recent letter to Mr. E. W. Littlefield of the New York Conservation Department, gives the following interesting account of some Pinus peuce seedlings which he saw in New Hampshire.

"Recently while in New Hampshire I saw several beds of 1932 Pinus peuce seedlings that were equal in uniformity with the best P. strobus beds I have ever seen. Mr. L. N. Watson, Assistant State Forester, told me how this seed had been landed, and I am repeating this information from my notes for your use in connection with this species.

"The seeds were mixed with moist sawdust in a cloth bag, which was then placed in a crate packed with damp moss. The crate was put in a cold storage plant and kept at 8 or 10°F. for about three weeks, the contents being frozen solid during this time. Seed was planted immediately after removal from storage but rather late in the season (probably in June). Practically no germination occurred the year of planting, but in this, the second year, the germination seemed both high in percentage and very uniform over the several seedbeds. Mr. Watson was of the opinion that fall planting would have resulted in the full germination occurring the following spring."

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RADIO BECOMES AN IMPORTANT EDUCATIONAL MEDIUM IN RHODE ISLAND

Mr. A. W. Hurford, the Rhode Island Blister Rust Control Leader and part time Associate Forester of the State Bureau of Forestry, has given 11 talks over Providence broadcasting stations during 1932. Another talk is scheduled for the latter part of December. Two white pine blister rust control talks were among the twelve scheduled. However, several of the other talks included mention of white pine blister rust control work and the importance of white pine.

CONIFEROUS SHELTERBELTS IN IOWA

H. N. Putnam, Wis.

While driving through northeastern Iowa on October 18 and 19, 1932, advantage was taken of an opportunity to make a rough census of the number of coniferous shelterbelts, with particular reference to the occurrence of white pine in them. This census was taken from Waverly in Bremer County along State Highway 10 and 11 to West Union in Fayette County and along State Highway 18 from West Union to McGregor on the Mississippi in Clayton County, a distance of approximately 94 miles. A count was made of all coniferous shelterbelts, regardless of species and a separate count was kept of coniferous shelterbelts in which white pine constituted by count 50% or more of the trees. Only coniferous shelterbelts on property facing the highway traveled were counted and shelterbelts inside corporate limits of towns were excluded.

As used in this count a coniferous shelterbelt had to be at least 75 feet long and contain at least one row of coniferous trees. An attempt was made to count only one shelterbelt to a single property; that is, if there were several shelterbelts around one set of buildings obviously under one ownership, they were counted as one shelterbelt.

On approximately 94 miles of highway over which this count was made there was found a total of 161 coniferous shelterbelts of which 47 contained white pine, 50% or more by count in composition. Thus there was slightly over 29% of the coniferous shelterbelts composed chiefly of white pine. On the basis studied there were 1.7 coniferous shelterbelts per mile and exactly .5 white pine shelterbelts per mile.

Conceivably the information obtained might be applicable to an area in northeastern Iowa, 63 miles north and south and approximately 75 miles east and west, or a total area of approximately 4725 square miles contained in the counties of Bremer, Chickasaw, Howard, Winneshiek, Fayette, Clayton and Allamakee. From the Iowa official road map it is calculated that there are approximately 1,750 miles of road in this area.

On the basis of this very inadequate sampling and method of estimating road miles, and assuming that my count is fairly representative of the region, we can compute then that in these seven counties there are 2975 coniferous shelterbelts of which 875 contain 50% or more white pine.

For purposes of argument let us assume that this area of seven counties represents about one-quarter of the State of Iowa in which coniferous shelterbelts would be grown. On the basis of this assumption then we calculate that there are nearly 12,000 coniferous shelterbelts on the farms of Iowa of which 3,500 are composed chiefly of white pine.

It is not contended in this article that the actual figures as shown have any particular value, especially when the basis is so entirely inadequate and whatever errors they contain multiplied by factors which are admittedly very sketchy. They are submitted merely to show that conifers and particularly white pine are used very extensively in Iowa as shelterbelts.

An attempt was made to grade the different coniferous species according to their abundance. Starting with the most abundant the order of decreasing frequency is about as follows: Norway or white spruce, white pine, Scotch pine, cedar, Norway pine and larch. The demonstrational value of the particular composition of shelterbelts was quite strikingly brought out. That is, for a number of miles I would run across shelterbelts in which perhaps Scotch pine predominated. In another group Norway spruce might be the chief tree. On another stretch of road white pine would predominate, etc. A great many of the coniferous shelterbelts, not classified as white pine shelterbelts, contained white pine in quantities less than 50%. I would judge that at least half of the shelterbelts counted contained one or more white pine trees. Many of the shelterbelts classified as white pine were almost pure white pine.

For the most part I would judge the age of the shelterbelts at from 30 to 50 years. However, a fairly large number were from 10 to 20 years of age. I saw very few less than 10 years old.

At Hampton, Iowa, I had occasion to learn something of the *Ribes* condition in these windbreaks. I looked over five coniferous windbreaks. In every one *Ribes* were quite abundant, particularly *R. americanum* with a few *R. missouriense*. I was quite surprised to find so many *Ribes* under the coniferous shade of these trees. However, the control problem around white pine shelterbelts would not be great since for the most part they are surrounded by cultivated fields of corn and in themselves occupy only a fraction of an acre. Hence the chief problem of protection would be the removal of cultivated gooseberries and currants within their infecting distances and the cleaning up of the wild *Ribes* within the shelterbelt itself and of course the ever-present problem of removing cultivated black currants within a mile. As to the cultivated black currant problem in Iowa, from my limited observation I do not believe that many of the farmers have cultivated black currant bushes.

White pine in Iowa because of its rapid growth, long life and freedom from the weevil is peculiarly well adapted to shelterbelt use. A good shelterbelt is an asset of no mean importance in the open country of the corn belt of Iowa. It is believed that farmers appreciate the value of their white pine shelterbelts and would be willing cooperators in their protection against white pine blister rust. There is a real and worth while job in Iowa in a combination cultivated black currant campaign and protection of white pine shelterbelt campaign.

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SUSCEPTIBILITY OF RIBES HUDSONIANUM

R. I. Thompson, Mich.

An interesting fact was brought to my attention while working on National Music Camp, a private control project in Grand Traverse County, Michigan. A large *Ribes hudsonianum* bush was found badly infected with blister rust. A number of *Ribes americanum* bushes growing close by were carefully examined, but no blister rust infection was found. Another location of *Ribes hudsonianum* was found about 600 feet north of the above location, and it in turn was infected, while other *Ribes* growing close by were not infected. This all goes to show the susceptibility of *Ribes hudsonianum* over other wild *Ribes*, and bears out the fact of the susceptibility of *Ribes petiolare* (which plant the *Ribes hudsonianum* closely resembles) in the West over other species.

FEDERAL TAX ON GASOLINE

There is apparently an understanding on the part of some of the purchasing agencies of the Department that the Federal tax imposed on gasoline by the Revenue Act of 1932 is on the same footing as the motor-fuel taxes of State origin with respect to the exemption of the Federal departments from the payment. Notices are reported to have been given by field branches to local gasoline dealers that the Federal tax could not be paid by the Department and that its inclusion would invalidate any bid submitted by the concern.

The Government may not be compelled to pay State taxes, on the principle that the sovereign may not be taxed - *Panhandle Oil Company v. Mississippi*, decided by the U. S. Supreme Court. The Revenue Act of 1932, however, does not exempt the departments from the payment of the Federal tax on gasoline. Hence Department purchasing officers are not on inquiry whether the Federal tax is included in the bid; or if it is clearly included as a specified added item, the offer is not disqualified. But this reservation should be clearly understood: when the bidder names the price without mention of the tax, acceptance debars him from adding the tax even if he asserts that it was his intention and understanding that it should be added. In other words, assuming the bidder's price, tax aside, to be 6¢ a gallon; he may bid 7¢ or 6¢ plus 1¢ Federal tax, or 6¢ plus the Federal tax on gasoline; and any one of these bids may be accepted. But if he bids 6¢ merely without mention of the tax, he can be paid no more. What he agrees to accept is the limit of the Government's obligation.

P.B.A. Circular No. 219
November 30, 1932.

(Signed) W. W. Stockerberger,
Director, Personnel and
Business Administration, U.S.D.A.

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GIPSY MOTHS DAMAGING WHITE PINES IN SOUTHEASTERN MASSACHUSETTS

C. C. Perry, Mass.

During the 1932 field season we have commented upon the injury to white pines in our southeastern Massachusetts district, particularly in the vicinity of the town of Middleboro. In this same connection, the following comment in the November 1, 1932, issue of the Bureau of Plant Quarantine News Letter is of interest:

"The white pines in many places have suffered severely. Many of these are in about the same condition as when the caterpillars stopped feeding, except for a small amount of new foliage on the tops of the trees. There is no foliage on many lower branches, but where a feeble attempt to refoliate has occurred, the needles are short and in general are at the tips of the twigs only. The damage to the smaller pines, those from 1 ft. to 8 or 9 ft. in height, is even more apparent at this time than it is on the larger ones. In some sections quite a number of these pines are dead, and the needles of those that are still alive are in many instances not more than one-half inch long. The season is so late now that there cannot be much more growth this year. The pines if alive at all next spring will be in a very weakened condition and deformed, for in many cases the tips of the leaders and twigs are already dead."

Agent Brockway is making a study of refoliation in a section of Middleboro, and may have some interesting reports to make later. This matter of injury by gipsy moths has a vital relation to our blister rust control efforts in southeastern Massachusetts. In one area in Middleboro, for example, we had planned to make reexaminations this summer, but following the serious depredations by gipsy moth larvae, it was unwise to even approach the owners on the subject of further blister rust control work.

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UNEMPLOYMENT RELIEF CONFERENCE FAVORS USING UNEMPLOYED
IN BLISTER RUST CONTROL WORK

John K. Kroeber, Mich.

At the second meeting of the Upper Peninsula Unemployment Relief Conference held at Marquette, Michigan, on December 7 the following paragraph was adopted in the resolutions:

"6. Further, that if it is not possible for us to secure work relief for unemployed in our counties through industrial projects or highway work relief projects, that we favor the utilization of such labor in the elimination of white pine blister rust from our forests, improvement of state and county parks, state and federal forests, planting and beautification of roadsides, and for such other projects for which we are assured that expert official supervision will be afforded."

The Unemployment Relief Conference is a body consisting of members of the Fifth Zone Michigan Trade Recovery Committee, the chairman of the Boards of Supervisors of the 15 Upper Peninsula counties, the road commissioner of each county, the chairman of county relief committees, and the Upper Peninsula Development Bureau. The purpose of this conference is to alleviate distress by furnishing employment.

Inasmuch as this body will apply for a loan from the Reconstruction Finance Corporation to finance the various projects it is giving particular attention to self-liquidating projects such as industrial and highway work. However, if such projects are not adequate for giving an outlet for unemployed labor, other worthwhile projects will be considered.

Blister rust control fits admirably into the scheme of things in that the total expenditure goes directly to labor. While not self-liquidating in the R. F. C. sense, there is no question but what blister rust control is beneficial to every individual pine owner and to every county growing white pine within its boundaries, as well as to the Upper Peninsula of Michigan as a whole.

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NORTHERN WHITE PINE QUOTED AT \$63 PER M

The selling price of lumber in Milwaukee, Wisconsin, as quoted by six local dealers was \$35 per M for Douglas fir and \$63 per M for the same grade of northern white pine (white and Norway). There is a difference of \$28 in favor of northern white pine.

GROWTH OF MACEDONIAN PINE (PINUS PEUCE) IN OHIO

The following interesting report on the growth of a small plot of Macedonian pine at the Wooster Arboretum appeared in the "Ohio Forest News" for November, 1932, under the heading "Macedonian Pine in Ohio":

**** In Ohio, a small plot of 20 trees of the Macedonian pine was planted in April, 1918, using small transplants. These pines have been making moderately good growth in the 15 years they have been planted, averaging 13.6 feet in height, and 2.3 inches in diameter. This growth, averaging less than a foot in height per year, places this species among the slower growing pines in the Wooster Arboretum. There are today 17 of the 20 original trees still standing and the largest of these is 20 feet tall, and 3.3 inches in diameter. ****

(Note: The above note is of interest in light of the article by Dr. Karl M. Müller entitled "Pinus peuce, the Macedonian White Pine, as a Substitute for Pinus Strobus", which appeared as a Supplement to the March, 1932, Blister Rust News. - Editor)

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SUMMARY OF CONTROL WORK IN WISCONSIN - 1931

T. F. Kouba, Wis.

During the past field season our efforts in blister rust control work were devoted largely to local control. Pine owners to the extent of 138 cooperated by furnishing the majority of the labor necessary to protect their 6,296 acres of white pine. Including protection areas, approximately 19,712 acres were covered and some 1,429,100 Ribes bushes were removed.

About one-half of this work was carried on in Shawano County where a county-wide eradication program was begun as a follow-up of the white pine survey made in the county last winter. Ten men from the county unemployed list were used in this work. They were paid partly by the county and partly by the State and were responsible to State Foreman E. W. Atkins who supervised the work in that county. The other half of the local control work progressed in State parks, on State lands where prisoners protected approximately 900 acres of white pines, and on private lands in counties other than Shawano where individual pine owners also cooperated. In addition sanitation zones for five forest tree nurseries were checked. These five nurseries produce some 8,000,000 white pines.

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PUBLICATIONS

Anonymous - "Blister Rust Quarantine Revised", American Nurseryman, Oct. 1, 1932.

Hoyt, Avery S. - "White-Pine Blister-Rust Quarantine: Quarantine No. 63, Revision of Regulations", The National Nurseryman, October 15, 1932.

May, Richard M. - "Blister Rust Threatens White Pine in Penn's Woods", Forest Leaves, Oct., 1932, No. 8, p. 121.

In this article Mr. May gives a clear exposition of the blister rust and the various stages of its existence.

May, Richard M. - "Blister Rust Infection Study and Salvage Experiment", Service letter of the Pennsylvania Dept. of Forest and Waters, Nov. 17, 1932.

Russell, Paul H. - "White Pine in the Gallitzin District, Pennsylvania", Forest Leaves, Oct., 1932, No. 8, p. 124-125.